

SMITHSONIAN zoo goer

Published by **FRIENDS OF THE NATIONAL ZOO**
MARCH | APRIL | 2010

Cheetah challenges

THESE SPOTTED CATS
ARE IN CRISIS.

- » Panda progress
- » Animals on the Move
- » Spring Events

FUJIFILM... WE'RE MORE THAN YOU IMAGINED

Fujifilm companies in the United States serve a broad spectrum of industries including medical, electronic, chemical, graphic arts, information systems, motion picture, broadcast, and photography – all supporting a global commitment to environmental stewardship and responsible corporate citizenship.

FUJIFILM www.fujifilmfuture.com

10

Cheetah Challenges

Cheetahs are in crisis.

The Smithsonian's National Zoo hopes to repeat its success in breeding these endangered cats.

BY PHYLLIS MCINTOSH

MARCH | APRIL | 2010 | Vol 39, No 2

FEATURES

16 The Panda's Progress

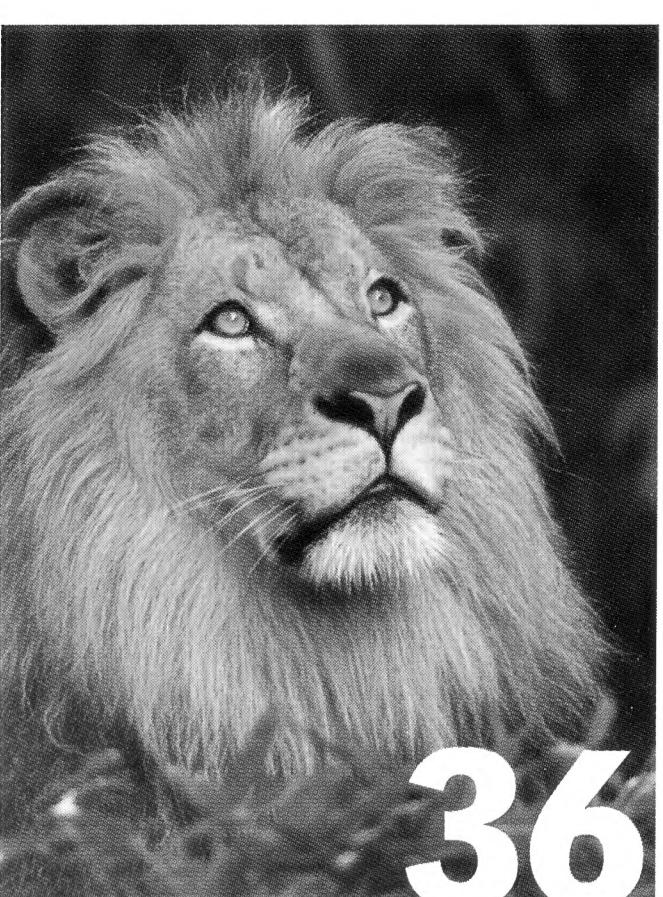
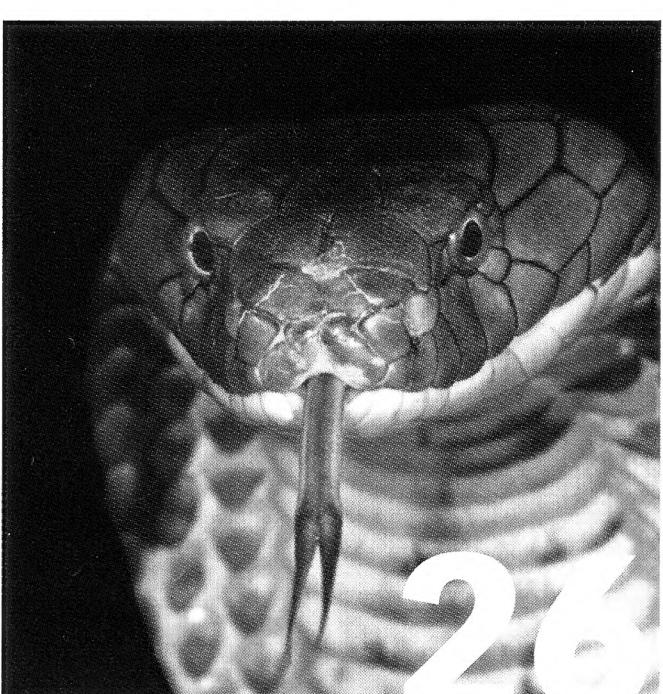
A TAI SHAN TIME LINE

Watch the Zoo's beloved giant panda cub grow from a tiny ball of white fur to an adored ambassador for his imperiled species.

20 Animals on the Move

BY VALERIE MAY

How do you move a hippo? A tiger? A zebra? Very carefully, and only after painstaking planning.



SMITHSONIAN Zoogoer



is the dedicated partner of the Smithsonian's National Zoological Park. FONZ provides exciting and enriching experiences to connect people with wildlife. Together with the Zoo, FONZ is building a society committed to restoring an endangered natural world. Formed in 1958, FONZ was one of the first conservation organizations in the nation's capital.

Smithsonian Zoogoer [ISSN 0163-416X] is published bimonthly by Friends of the National Zoo (offices located at the Smithsonian's National Zoological Park, 3001 Connecticut Ave., N.W., Washington, D.C., 20008-2537). Periodicals postage paid at Washington, D.C. Postmaster: Send change of address to *Smithsonian Zoogoer*, FONZ, P.O. Box 37012 MRC 5516, Washington, D.C. 20013-7012. Copyright ©2010. All rights reserved.

Smithsonian National Zoological Park is located at 3001 Connecticut Ave., N.W., Washington, D.C., 20008-2537. Weather permitting, the Zoo is open every day except December 25. For hours and other information on visiting the Zoo, go to nationalzoo.si.edu.

Membership in FONZ offers many benefits: programs, publications, discounts on shopping and events, free parking, and invitations to special programs and activities. To join, write FONZ Membership, FONZ, P.O. Box 37012 MRC 5516, Washington, D.C., 20013-7012, call 202.633.3034, or go to www.fonz.org/join.htm.

Membership categories and annual tax-deductible dues are:

Household	\$60
Household (two years)	\$108
Young Professional	\$45
Individual	\$45
Individual (two years)	\$81
Senior	\$40
Contributing	\$100
Patron	\$250
Sponsor	\$500
Benefactor	\$1,000
Director's Circle	\$2,500
Conservation Circle	\$5,000
Wildlife Society	\$10,000
Zoogoer (for those outside a 200-mile radius of Washington, D.C.)	\$35
(\$8 of membership dues goes to a <i>Smithsonian Zoogoer</i> subscription)	

FONZ Board of Directors

James C. Weinberg, **President**; Andrew M. Shore, **Vice President**; Sheila D. Stinson, **Treasurer**; John F. Ring, **Secretary**; Marcie Bane, Ann H. Bissell, Keith J. Greene, David F. Grimaldi, Walter F. Jones, Deborah Knuckey, Robyn S. Kravit, Maureen Lemire, Timothy P. Lynch, Vicky Marchand, Alison McNally, Peter Michaels, Anne Nicoll O'Rourke, John Piper, Anne W. Salladin, Karen Silberman, Sheila D. Walcoff

Executive Director: Robert J. Lamb

Smithsonian Zoogoer

Publisher: Robert J. Lamb

Associate Director of Communications: Pamela Baker-Masson

Deputy Associate Director of Communications: Jodi Legge

Editor: Peter Winkler

Contributing Writers: Pamela Bucklinger, Brittany Grayson, Lindsay Renick Mayer, Jennifer Zoon

Intern: Caroline Treadway

Design: Free Range Studios

Email: Zoogoer@si.edu

An audio version of *Smithsonian Zoogoer* is available on our website for members who cannot read standard print due to disability. For more information, please visit www.fonz.org/zoogoer.htm.

On the cover: Olivia surveys her enclosure in the cheetah facility at the Zoo's Front Royal campus. PHOTO BY MEHGIAN MURPHY/NZP



The Smithsonian's National Zoo is accredited by the Association of Zoos and Aquariums.



Printed with 100% soy-based inks



LEADING THE LEADERS

YOU CAN SUM UP MY JOB IN ONE WORD: LEADERSHIP. My top priority since taking the helm on February 15 has been to learn how I can help our Zoo continue and expand our leadership role in the city, the nation, and the world. People near and far look to us as leaders in the zoological and conservation communities, and I have the great privilege and responsibility of ensuring that we maintain and build upon our excellence, especially in the fields of science, animal care, education, and visitor experience.

In the realm of science, the Zoo took a key step forward with the recent creation of the Smithsonian Conservation Biology Institute (SCBI), which launched in January. SCBI is an umbrella organization for the Smithsonian's efforts to conserve species and train new generations of conservationists. SCBI comprises six centers: the Center for Conservation Education and Sustainability, the Smithsonian Migratory Bird Center, the Conservation Ecology Center, the Center for Species Survival, the Center for Conservation and Evolutionary Genetics, and the Center for Wildlife Health and Husbandry Sciences. You can read more about SCBI on p. 6.

This was Steve Monfort's vision, and I'm grateful that he will captain SCBI as skillfully as he shepherded the Zoo through its recent leadership transition. I thank Steve for his service past and present, and I look forward to watching SCBI flourish under his leadership.

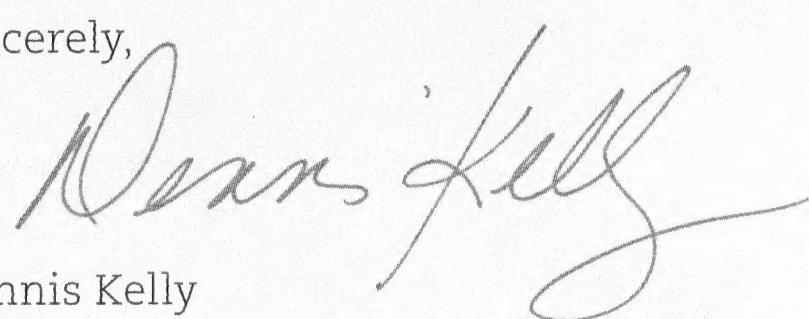
Animal care, of course, is of paramount importance to me and to the entire Zoo team. In my brief time here so far, I've been keenly impressed by the dedication of the animal care staff—curators, keepers, and veterinarians alike—and their determination to ensure that each animal has as rich and healthy a life as possible.

Education and visitor experience, I believe, go hand in hand. Our primary tool for educating people about the wonders of wildlife is the Zoo itself. The learning doesn't stop there, though. Volunteer interpreters, classes and lectures, the Zoo's website, and the pages of *Smithsonian Zoogoer*, to name just a few examples, all contribute to the vital work of education. In this endeavor, the Zoo is fortunate to have a strong, stalwart partner in Friends of the National Zoo (FONZ). By being a FONZ member, you are helping the Zoo achieve its leadership potential, and I thank you heartily.

For me, leading the Zoo is a job with twin foci, internal and external. One focus, clearly, is leading the leaders within the Zoo, equipping them with what they need to excel and calling forth their myriad talents. The other focus, equally important, is extending and strengthening the Zoo's web of partnerships—not simply with other zoos, but with our sister organizations within the Smithsonian, wildlife and conservation groups, educational institutions, businesses, and people.

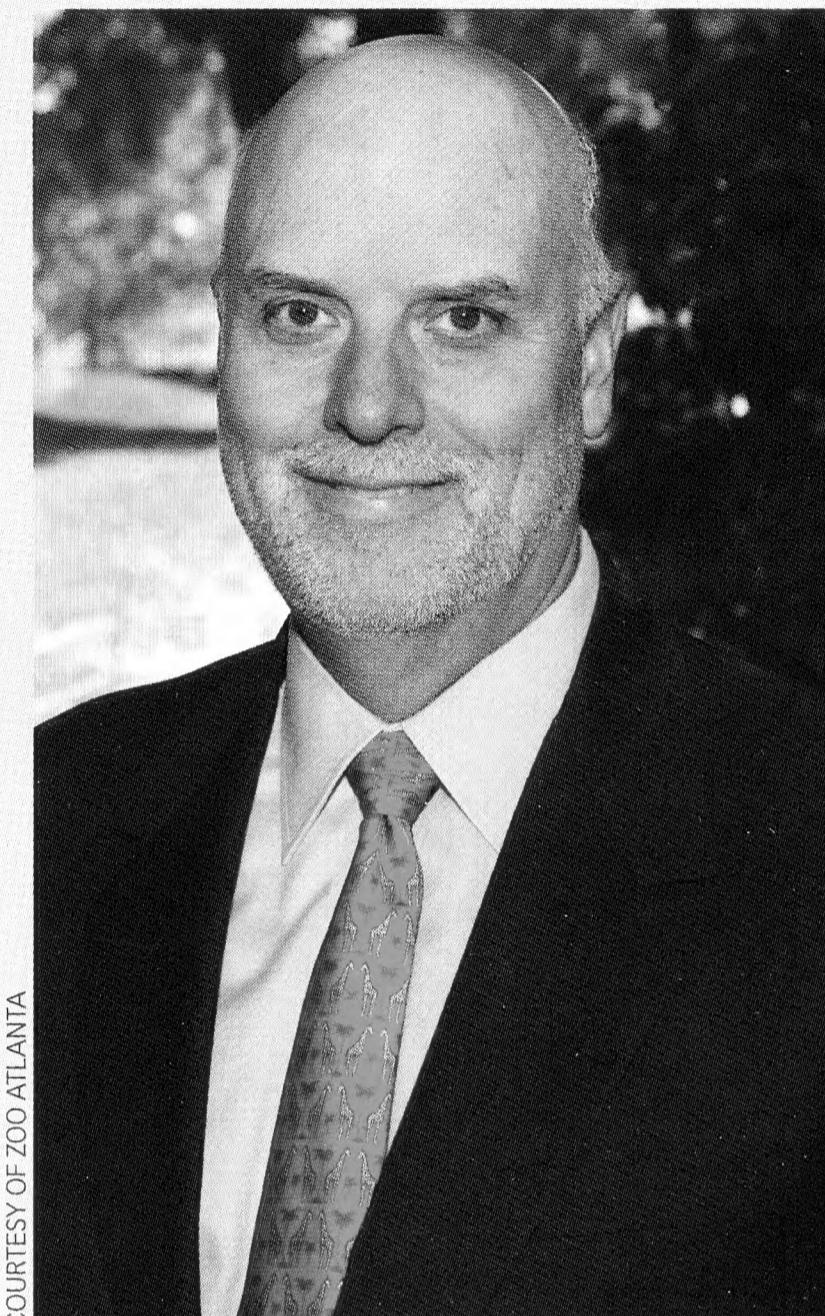
Balancing those spheres of responsibility will be a challenge, but I welcome challenges. So, I know, do the men and women it is my honor to lead. Working together and drawing on your support, we can lead the Smithsonian's National Zoo into its greatest years yet.

Sincerely,



Dennis Kelly

Director, Smithsonian's National Zoological Park



COURTESY OF ZOO ATLANTA

PANDA PRIDE

PRESIDENT NIXON NEVER CAME TO SEE THE PANDAS. He must have been the only Washingtonian not to fall under the spell of Ling-Ling and Hsing-Hsing, who arrived at the Smithsonian's National Zoo in 1972. The first giant pandas in a U.S. zoo, they were a gift from China in celebration of the first visit of a U.S. President to that country. Washington has been in love with pandas ever since.

Ling-Ling and Hsing-Hsing produced five cubs, but, to everyone's sorrow, none lived. Ling-Ling died in 1992, Hsing-Hsing in 1999. For the first time in a quarter of a century, the National Zoo had no pandas. There was a hole in the city's heart.

Things changed a year later. The Zoo entered a ten-year agreement with China, in which two pandas would come here on loan. In exchange, the Zoo would contribute substantially to conservation efforts in China. I am proud to say that Friends of the National Zoo played a key role in helping to secure the necessary funds. Two new pandas, Mei Xiang and Tian Tian, arrived in December 2000, and Washington fell in love all over again. That love deepened with the 2005 birth of Tai Shan, the only cub born at the Zoo to survive. You can trace his life story on p. 16.

Now begins a new chapter in the history of pandas at the Zoo. Last month, Tai Shan traveled to China to boost the population there, and the sun is setting on our loan agreement for Mei Xiang and Tian Tian. It's time to think once again about the future of pandas at the Zoo. Later this year, the Zoo will open negotiations with China on a new loan agreement. Depending on how Mei Xiang and Tian Tian fit into species-wide breeding plans, we may keep them or exchange them for two others.

Having pandas at the Zoo is about more than simply enchanting our visitors, however. It's a vital opportunity to study these elusive, endangered bears. Since 1972, the Zoo has amassed a tremendous amount of panda knowledge, particularly in the area of reproduction. Data from the Zoo, for example, have helped Chinese scientists achieve a 50 percent success rate in their efforts to artificially inseminate pandas in captivity.

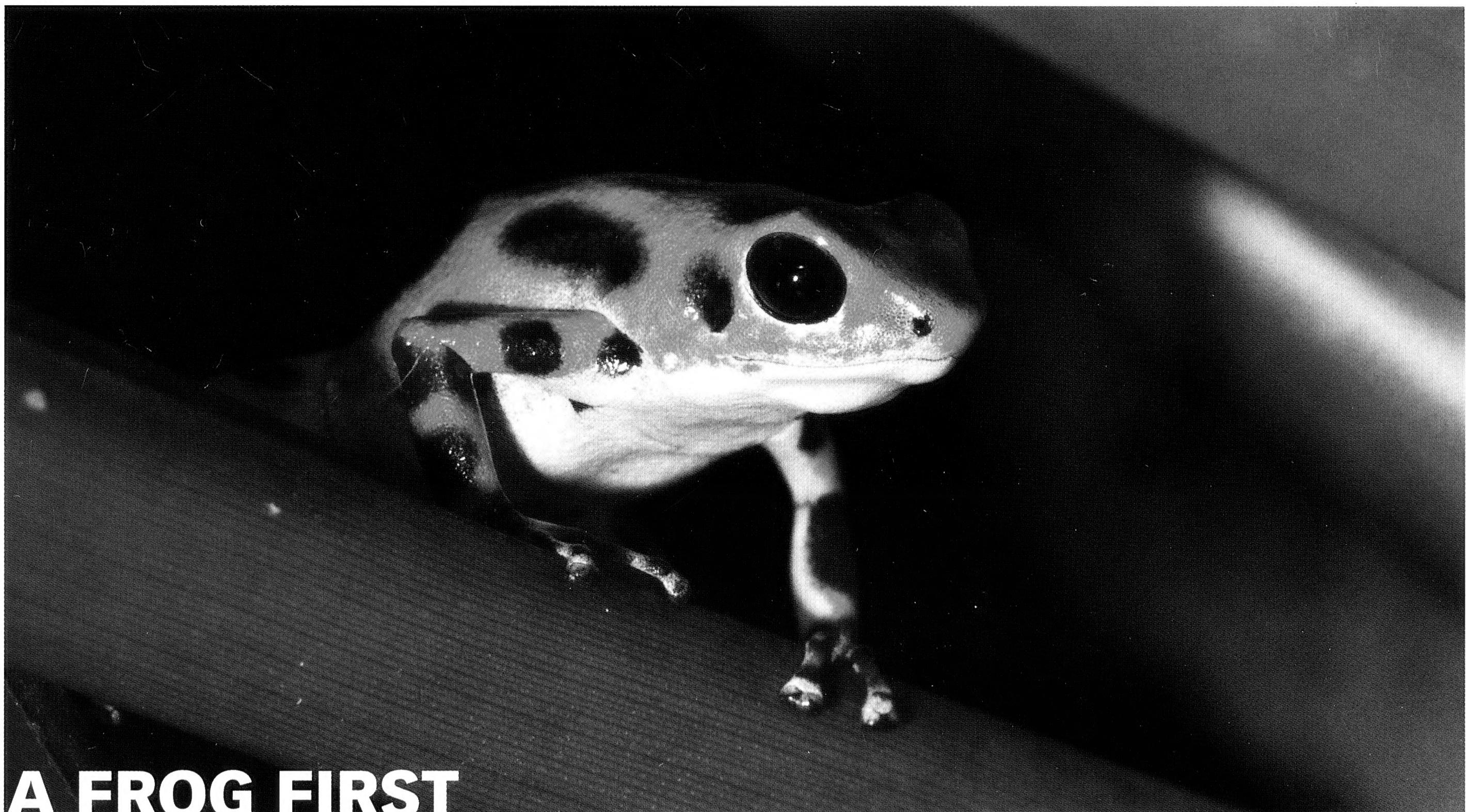
Keeping pandas at the Zoo will require raising significant funds for a new loan agreement. Watch for an email introducing our grassroots "I ❤️ Pandas" campaign and directing you to our website, where you and your friends can help us continue nearly 40 years of panda exhibition, research, and conservation at the National Zoo.

That tradition will also be supported at our "Panda Bear Affair," this year's theme for ZooFari on May 20. This wonderful celebration of cuisine and conservation is a fantastic Zoo event. Vidalia Restaurant's executive chef, RJ Cooper, calls ZooFari "the quintessential Washingtonian event. What can be better than touring the Zoo, eating from fantastic restaurants, and enjoying libations under the stars?" Cooper is not alone in his enthusiasm for ZooFari. Other chefs—and FONZ members too—tell us it's their favorite event of the year. You can learn more about ZooFari 2010 on p. 29. Please join us for a great evening and support the work of the Zoo in the process!

Sincerely,

Bob Lamb

Executive Director, Friends of the National Zoo



A FROG FIRST

For the first time ever, the Smithsonian's National Zoo has successfully bred strawberry dart frogs (*Oophaga pumilio*). Known for their brightly colored, highly poisonous skin, these frogs are native to Central and South America. They grow to be about the size of a quarter.

Unlike most other frogs, strawberry dart frogs are known for meticulous parental care. "Most frogs put out a tremendous amount of eggs, let them go and see what happens. The tadpoles swim off and there's no one looking after them," says keeper Justin Graves. "But not these guys. These guys are sticking around. Because the females only lay a few eggs, they put a greater amount of care and energy into looking after them."

When the eggs hatch, the female carries each tadpole, individually, up the side of a plant or tree. She searches for a small pool of water, about a thimble's worth. There, she deposits the tadpole. In the wild, researchers have witnessed females trekking 40 feet up to find the perfect nook for their young. The female then spends the next six to eight weeks going back and forth to each tadpole, laying unfertilized eggs in the pool for it to eat.



ANDEAN BEAR CUBS

Billie Jean, a four-year-old Andean bear (*Tremarctos ornatus*), gave birth to two cubs in January. This is her first litter, and "everything has gone like a textbook," says curator Craig Saffoe. That's even more exciting than usual, he explains, for no North American zoo has had a successful Andean bear litter in more than a year. At press time, the cubs' sexes were not yet known. You can learn more at nationalzoo.si.edu.

MEHGAN MURPHY/NZP

MEHGAN MURPHY/NZP

BIRD FRIENDLY COFFEE

Discerning coffee lovers have a new label to look for. The Smithsonian Migratory Bird Center (SMBC) has developed criteria used to certify coffee as "Bird Friendly." That means the coffee is "both certified organic and meets strict shade standards," says SMBC scientist Robert Rice. Bird Friendly coffee is grown in places that have a canopy of shade trees that provide high-quality habitat for birds and other wildlife.

A small royalty from Bird Friendly coffee sales supports the work of SMBC scientists in their efforts to further explore the bird-coffee

connection and to conduct other research on migratory birds. In Veracruz, Mexico, scientists have examined the ecological role of epiphytes—orchids and other plants normally removed from trees that shade the coffee—as habitat for birds that provide natural pest control.

The Zoo's restaurant and concessions now serve Bird Friendly coffee grown on a family farm in El Salvador. The beans are slowly ripened near volcanic springs, processed using water from hot springs, and then sun-dried. Come by for a cup!

You can learn more about Bird Friendly coffee at nationalzoo.si.edu/bf.

Smithsonian Conservation Biology Institute

On January 25, the Smithsonian Institution launched the Smithsonian Conservation Biology Institute (SCBI) to serve as an umbrella for its global effort to conserve species and train conservationists. The facility was previously known as the Conservation and Research Center. Steve Monfort, formerly the Zoo's associate director for conservation and science, will head the Institute.

Conservation biology is the effort to study and save Earth's diversity of plants and animals, which face grave threats, notably habitat destruction, overexploitation, pollution, invasive species, and global climate change. SCBI unites the Zoo's six science centers (listed on p. 3) to address these threats. SCBI scientists also collaborate with colleagues from across the Smithsonian and around the world.

"The Zoo's potential for becoming a truly great zoo," says Monfort about the new Institute, "is inextricably linked to the science we conduct. SCBI will lead the Smithsonian's efforts to understand and mitigate the negative effects of environmental change on the survival of species and their habitats."

Visit nationalzoo.si.edu to subscribe to our conservation and science e-newsletter.

JESSIE COHEN/NZP





MEGAN MURPHY/NZP

NEW GREENHOUSE

The Zoo's award-winning horticulture team has a new home. A 4,000-square-foot greenhouse, twice the size of the old one, now shelters the Zoo's valuable collection of plants. Located near the animal hospital, the new structure has an 18-foot peak, allowing it to hold even the tallest *Strelitzia* plants, which need shelter in cold months so that they can adorn the park in warm weather. "Being able to overwinter our diverse collection of plants supports our habitats and display gardens," says horticulturist Teresa Vetick. "We'll be able to bring out all these big, beautiful tropical plants in the spring, so we're very excited about that."



ANN BATDORF/NZP

Elephant Genetics Research

National Zoo scientists and their collaborators became the first in the world to successfully analyze in Asian and African elephants part of the gene family that helps determine how resistant they are to viruses, parasites, and bacteria. Ultimately, the scientists' findings could provide the building blocks for captive-breeding programs that increase elephants' resistance to harmful pathogens.

Tuberculosis and elephant endotheliotropic herpes virus have plagued elephants in the wild, while herpes alone is responsible for about half of the deaths of young elephants in zoos. By "characterizing" (interpreting and describing) elephants' immune-system genes, scientists took the first step in understanding the role of genetics in warding off disease for elephants. Next they'll try to determine to what extent the genes affect susceptibility to specific illnesses, such as herpes.

"What we learn about the genetics of their immune system may help us to conserve the species," says Robert Fleischer, head of the Zoo's Center for Conservation and Evolutionary Genetics.

The National Zoo's three Asian elephants, Shanthi, Kandula, and Ambika, were among the elephants included in the research, which focused on the immune-system gene family known as the major histocompatibility complex.

Mark Your Calendar

Mar. 30 **Snore & Roar Priority Registration**

Members at the contributing level (\$100) or above can register at www.fonz.org/snoreandroar.htm.

Apr. 1 **Zoo Summer Hours Begin**

Zoo buildings will be open from 10 a.m. to 6 p.m.

Apr. 5 **Easter Monday: African American Family Celebration**

Learn more on p. 31.

Apr. 6 **Snore & Roar General Registration**

All members can register at www.fonz.org/snoreandroar.htm.

Apr. 10 **FONZ founded, 1958**

Apr. 17 **Cockadoodle Zoo**

Learn more on p. 30.

Apr. 22 **Bird Migration Lecture**

Learn more on p. 31.

Apr. 24 **Earth Day Celebration**

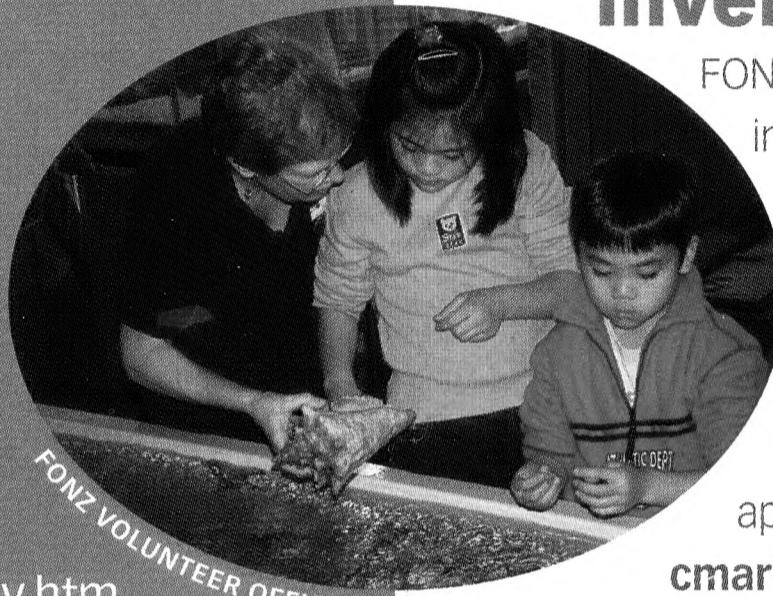
Learn more at www.fonz.org/earthday.htm.

Teacher Workshop

The Smithsonian Migratory Bird Center is hosting a workshop on May 7-8 for teachers enrolled or interested in the Bridging the Americas (BTA) program, which connects Washington-area classes with peers in Latin America. The workshop will introduce BTA, highlight birds as a cross-curricular teaching theme, and explore the science of bird migration. To learn more, contact Susan Bradfield at bradfields@si.edu or 202.633.4206.

Volunteer at the Invertebrate Exhibit

FONZ is recruiting volunteers to serve as interpreters at the Invertebrate Exhibit—home to an octopus, corals, crabs, leaf-cutter ants, spiders, and more. Volunteers serve as public educators sharing a wide range of information with Zoo visitors. For information about applying, please contact Bob Cmarik at cmarikb@si.edu or 202.633.3058.



run. climb. discover. giggle. play. eat.
laugh. create. learn. smile. bounce.
explore. bond. conserve. jump. marvel.
see. connect. revel. support. romp.
party. wonder. experience. imagine.
grin. squeal. enjoy. frolic. dance.
invent. sing. sense. amuse.

Friday, May 14, 2010, from 6 to 8:30 p.m.

This annual family-friendly event offers animal encounters, tasty treats, and spectacular activities especially designed for children ages 2 to 12.

GuppyGala
sponsored by
UnitedHealthcare®

UNRAVELING RED TAPE

Laura Morse still gets phone calls about Pig 311. The famous pig survived nuclear testing in the Marshall Islands and was found swimming off the coast of Bikini Atoll. It was brought to the Smithsonian's National Zoo in 1946 and died at the Zoo in 1950.

As head registrar, Laura Morse is the Zoo's border patrol, legal eagle, and record keeper all in one. She finds out everything about every animal that's come or gone through the Zoo's gates, and she has the records to prove it. So when people have inquiries about Pig 311, or any other animal, they call Morse.

Responsible for assisting with each animal's move to, from, and within the Zoo, Morse requests, signs, and files transport permits; stays current on state, federal, and international legislation; and maintains working relationships with commercial airlines and the U.S. Fish and Wildlife Service. Without her, the Zoo would be empty—literally.

"It's a jack-of-all-trades job," Morse says. "You have to be organized, detail-oriented, and know how to ferret out information. You need a lot of patience, which sometimes I'm short on, and you have to be able to deal with frustrations, because things can fall through at the last moment." The native Long Islander also has a master's degree in biology, a professional certificate in museum studies, and a lifelong love of animals.

Slicing through red tape is Morse's forte. While she isn't a lawyer, you'd never know that from looking at her inbox, which is bursting with national and international legal updates. "I've long said that the registrars are the unsung heroes behind the scenes. They're the ones that keep curators like me out of jail!" says Ed Bronikowski, one of the Zoo's senior curators.

The Zoo's new Japanese giant salamanders (*Andrias japonicus*) are a perfect display of Morse's patience under pressure. First she applied for the CITES (Convention on International Trade in Endangered Species) import permit, which had to be awarded before Hiroshima's Asa Zoo could apply for its export permit. The process took months, and the Zoo's import permit expired before the Japanese received their export permit. So Morse started over, fingers crossed, hoping the Zoo's new import permit would arrive before the Japanese export permit expired. Luckily, it did.

"When we have a successful international shipment, like the Japanese salamanders, it's a pretty good rush," Morse says, her green eyes sparkling behind thin glasses. "I realize I'm not just bringing in animals that are pretty to look at, I'm helping with the long-term survival of a species. Although it can be a bit torturous getting to that point."

—CAROLINE TREADWAY



MEGHAN MURPHY/NZP

» In each issue of *Smithsonian Zoogoer*, this "How Do You Zoo?" page will showcase someone who works at the National Zoo. Learn more about careers at the Zoo by visiting the How Do You Zoo? exhibit at the Zoo's Visitor Center. Children ages five to ten can get a hands-on feel for different jobs at the Zoo. The exhibit is open most weekends from 10 a.m. to 4 p.m.





Cheetah Challenges »

**The Smithsonian's
National Zoo has
become a leader in
the challenging field of
cheetah reproduction.**

BY PHYLLIS MCINTOSH

» Cheetah Challenges

YOU MIGHT CALL IT SPEED DATING, CHEETAH STYLE.

A male strolls down an alleyway dubbed Lovers' Lane and sniffs around yards where females are hiding out of sight. He tries to catch a whiff of a receptive female. If he announces that he likes what he smells, he and the female may introduce themselves through a fence. If she likes him too, she will roll on the ground or exhibit some other breeding behavior. Keepers will then make sure the couple gets a chance to meet—and, fingers crossed, mate.

The site of these amorous activities will be the 8.5-acre, state-of-the art cheetah facility, funded by your contributions, at the Zoo's Front Royal, Virginia, campus. With the flexibility to shift cats between Front Royal and Washington, D.C., where the Zoo staff have successfully produced two litters, the Zoo can optimize care and breeding of its cheetahs and is poised to become a national leader in rebuilding and maintaining the captive population.

Cheetahs in Crisis

Cheetahs need all the help they can get. Numbers in the wild have dwindled to an estimated 12,000, the result of habitat loss and competition with people and other animal predators for limited space. The captive population is also in crisis, despite a Species Survival Plan (SSP) that ranks and recommends individual cheetahs for breeding. "In the effort to genetically manage a group of animals, you sometimes end up with feast or famine, and we're definitely in a famine now," says Craig Saffoe, a biologist and longtime cheetah keeper at the Zoo. Of the 249 cats in American and Canadian zoos, only 16 percent have ever reproduced.

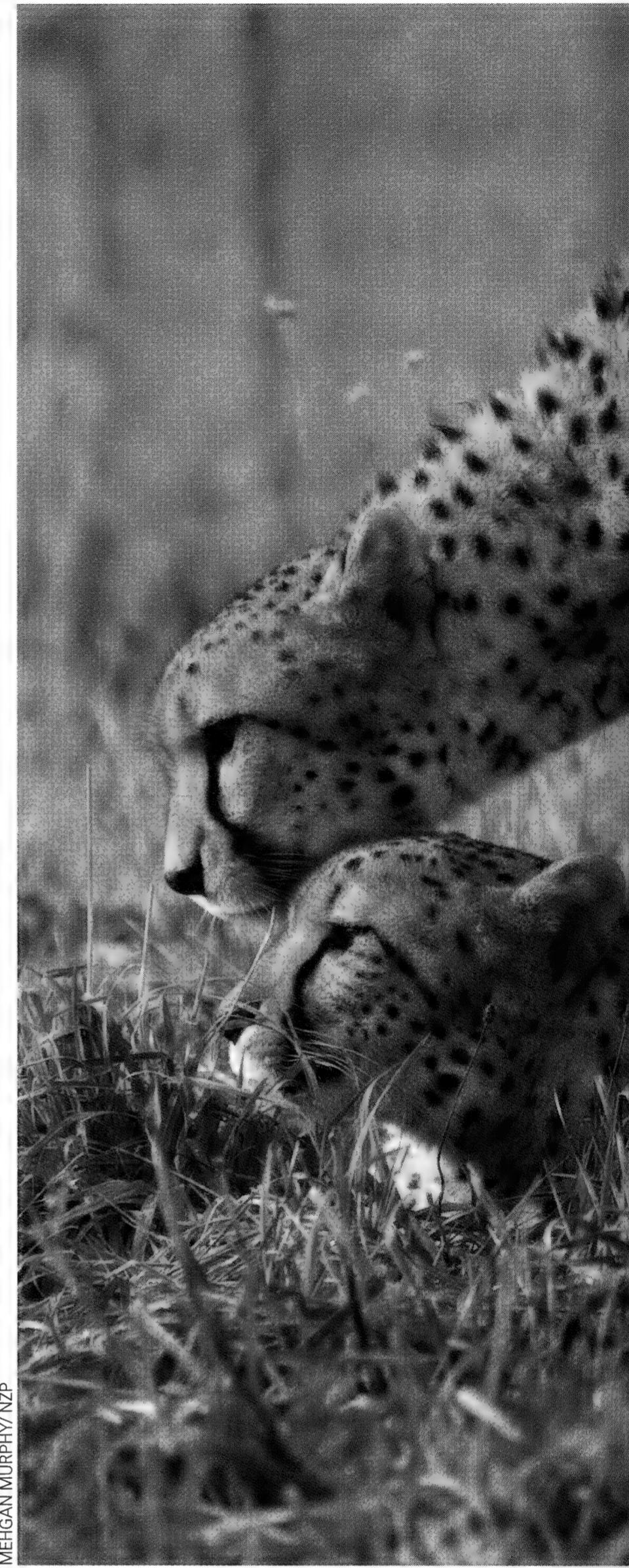
Part of the problem is an aging female population. Recent research has shown that fertility declines dramatically in females between six and eight years of age. Females up to age 12 still cycle and

produce hormones. Their ovarian pathways are intact, and they willingly mate. Yet they do not get pregnant, most likely because of problems such as cysts, fibroids, and buildup of fluid and tissue in the womb. Females above the age of six that have not given birth are unlikely ever to conceive. Even for those who have reproduced, chances of subsequent pregnancies diminish considerably when three or four years have elapsed since their last litter. Among North American cheetahs, only six proven breeding females currently are under the age of eight.

The sleek cats—famous as the fastest animals on land—are also notoriously difficult to breed. "Everything about their biology is unique," says Adrienne Crosier, a cheetah research scientist in Front Royal. "Estrous cycles are short and inconsistent among females and even in the same female. Most females do not show outward signs of estrus, and there may be subtle changes in behavior from cycle to cycle."

Keepers know that when females are housed together, a dominant female may "shut down" another's estrous cycle. Now, Zoo biologists suspect there may be some suppression among males as well. For example, Ume, the father of five cubs born at the Zoo in 2005, exhibited no breeding behavior until two unrelated males died.

MEGHAN MURPHY/NZP



As if all these were not hurdles enough, sometimes genetically desirable pairs simply aren't interested in one another.

Boosting Breeding

Because about 80 percent of births since 1960 have occurred at large regional breeding centers with the space, staff, and experience to best manage cheetahs, SSP scientists are now focusing breeding efforts on a handful of regional centers. The National Zoo is one of six such centers, along with White Oak Conservation Center in Florida, Fossil Rim Wildlife Center in Texas, The Wilds in Ohio, San Diego Wild Animal Park in California, and Wildlife Safari in Oregon.

Newest of the six centers, the cheetah facility in Front Royal is modeled on the



Zabini and Granger, two of the Zoo's three cheetah brothers, recently moved from Rock Creek to Front Royal. They and their brother, Draco, are named after Harry Potter characters.

TELLING CHEETAHS APART **The Tail Tells the Tale**

Il cheetahs look pretty much alike. "But if you look closely, every cat has some unique pattern on its body," says Juan Rodriguez, an animal keeper who has documented markings on the Zoo's cheetahs. On one animal, for example, the muzzle is tan; on another, it's whiter. One male has two parallel bars amid the spots on his right side. His brother has a black horizontal line on his left side.

Some researchers in the wild also use facial markings to identify cats. The black tear marks on the face, unique to cheetahs, can vary in width under the eye and at the lip. Likewise, dots above and at the corners of the eyes can differ among cheetahs.

But the most reliable of all distinguishing characteristics, Rodriguez says, are the tail bands, which are as individual as fingerprints. Not only do they differ from cat to cat, they also are different on each side of the tail in the same cat.

Tail bands come in different varieties. Some completely circle the tail. Others go halfway or three-quarters of the way around. Some go just a quarter of the way, looking almost like dots. Scan the five to eight inches nearest to the tip of the tail to find subtle differences that can distinguish individual cats.

design and breeding strategies of Fossil Rim and successful centers in South Africa. With 14 enclosures—four at one end and ten flanking the central alleyway—keepers can visually separate males and females prior to mating investigations and introductions. With cheetahs, absence, or at least separation, can indeed make the heart grow fonder.

The facility can comfortably house 20-plus cats, including mothers with cubs and groups of brothers, known as coalitions. Coalition members form a tight bond and remain together for life both in the wild and in captivity. The goal is to keep some yards empty at all times to maintain the flexibility to move cats as needed for breeding and their own welfare. "If one of the boys in a coalition has a minor injury, you

Location Times Two

A key advantage of having two Zoo locations just 7½ miles apart is that experts, biologists, and vets work closely together and are familiar with all the cheetahs. Cheetahs can be shuttled back and forth without much of a wait for the quarantine and extensive exams required when animals move from one location to another.

The ability to shut animals between Front Royal and Rock Creek whenever the Zoo can deal swiftly with health and behavior problems. "If we have a situation that is always weird, we will not be doing any service to her or the species by trying to force her to be on a tamer," Sander explains. "We can send her to Front Royal and hopefully avoid stress-related illness. On the other hand, if Front Royal has her enclosures filled, and a habitat cannot be vacated quickly to all these other cats, we could bring her to Rock Creek. Or if we say we have a prospective female at Front Royal, and we're not sure if she's the best one, we can move her around. We can do a lot of things between the two locations."

Zabini hops up on a log at the Zoo's cheetah exhibit at Rock Creek.

might not need to put him in the hospital, but he can't be in with his brothers either, so we could put him right next door where they can still see each other," Crosier says. "Or, if we have a litter of four or five cubs and they're a year old, we might need a couple of yards for them."

The staff closely monitors both biology and behavior in all the cats. Fecal samples yield important hormonal clues about stress levels and readiness for breeding. "If we're trying to keep track of a certain female to see if she's cycling, we need to get at least five samples a week, because the estrous cycle is so short that you can easily miss it," Crosier explains.

Biologists also assess the temperament of individual cats to make sure that females especially are in a settled, relaxed situation, crucial for breeding. At Front Royal, one cheetah enjoys her own space and likes to retreat to the back of the yard where no one can see her. A young, more anxious cat, on the other hand, is comforted by the presence of an older female next door.

Breeding efforts will focus first on two five-year-old females highly recommended by SSP scientists and on three brothers, recently transferred from the downtown Zoo. The brothers are genetically valuable because their parents, orphans at a captive facility in Namibia, were born in the wild.

The decision to move the males from Rock Creek to Front Royal accords with recent behavioral research, which suggests that it is better to move males among zoos for breeding and leave females in place. It can take some females a long time to adapt to new surroundings; meanwhile, biological clocks are ticking. Males, especially coalition members, tend to adjust more easily, perhaps because they have each other.

Because of the current crisis in the captive population, seven of the Zoo's eight cheetahs are in the breeding mix. The staff will even attempt to mate Zazi, an eight-year-old who gave birth to five cubs in 2005 but failed to conceive following two subsequent artificial inseminations. "We know from her fecal samples that she is still cycling, and because she's had a litter, we think there's some protection on her uterus," Crosier says. "Plus, she was an excellent mom. If nothing else, it will be



JESSIE COHEN/NZP

Zazi, a National Zoo cheetah, gave birth to these cubs in April 2005. This picture was taken a few months later.

good for the boys to witness the behavior of an older, experienced female."

So far, biologists have been stymied by the brothers' apparent lack of interest in mating. At four years of age, however, they are still young. Saffoe points to several captive males in the past which didn't start exhibiting breeding behavior until they were seven, eight, or nine.

Looking to the Future

At the same time that the Zoo is trying to coax cheetahs into breeding, scientists and veterinarians are also exploring other ways to boost the captive population. A major goal is to salvage the valuable genes of aging females who have never reproduced by fertilizing their eggs in the lab and transferring them to a younger cat.

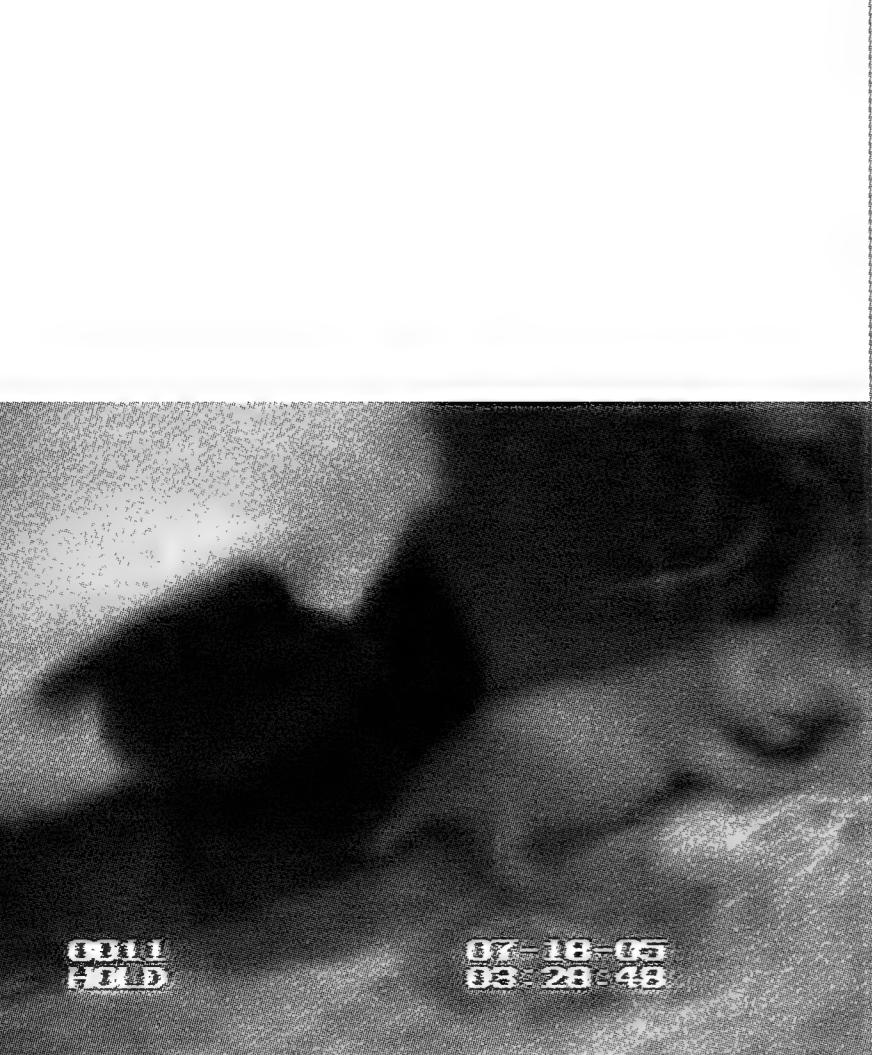
"We know the eggs of older cats are mature and do fertilize, but we have to figure out how to get a four-year-old female hormonally ready to receive fertilized eggs," Crosier says. "We're looking at different hormones and combinations of hormones, but this first step will take a couple of years."

The Zoo is also pursuing ways to import non-releasable, wild-born cheetahs from Africa. Another, more likely scenario is

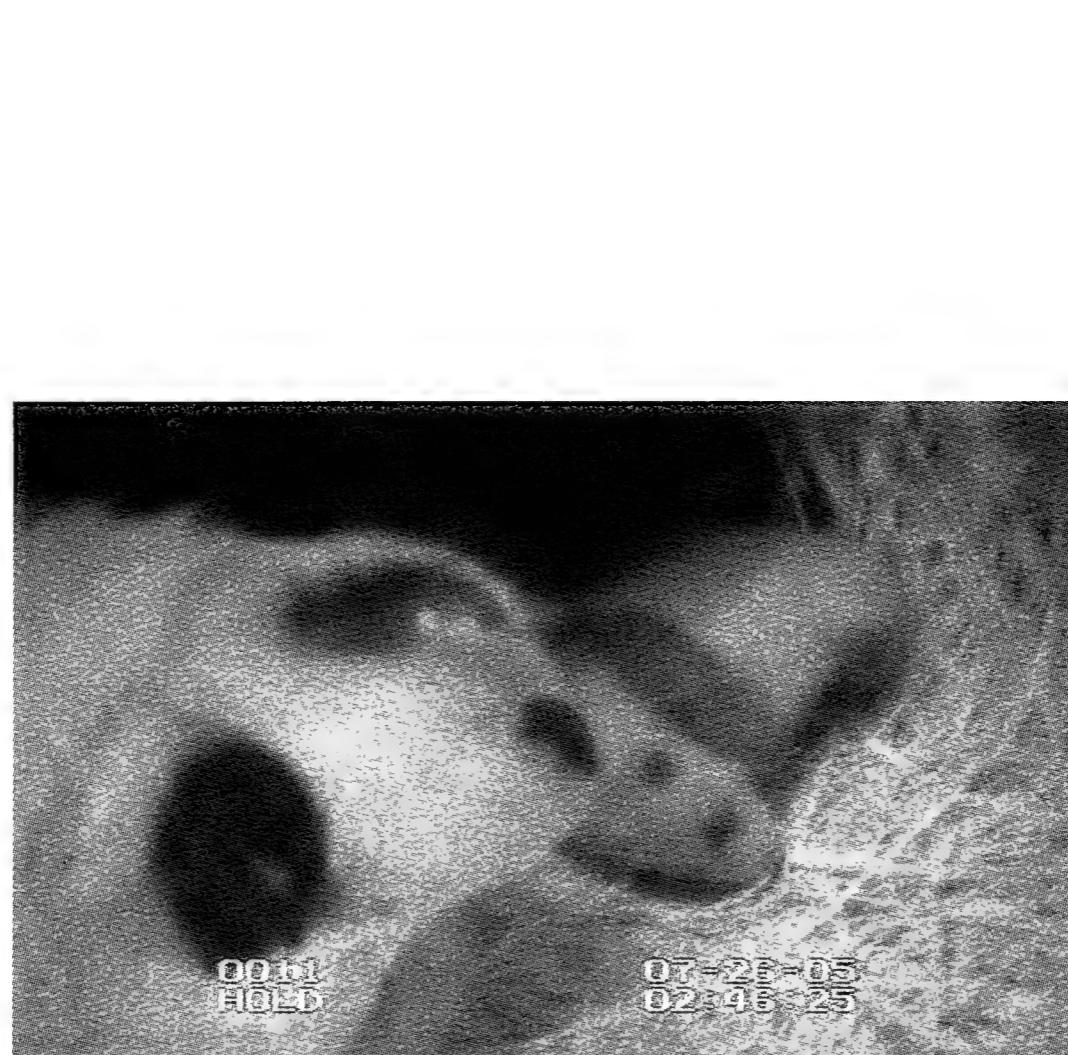
to obtain frozen sperm and embryos from wild-born animals. Already, some 300 African sperm samples and a handful of embryos are stockpiled at the Cheetah Conservation Fund in Namibia, which works closely with the Zoo. Although there may be complicated paperwork involved in importing such genetic material, it will likely be easier than bringing in live animals.

Since 1992, when the Zoo opened its highly successful cheetah exhibit, the Zoo has had a strong cheetah program, Saffoe notes. "Now, with the addition of a science facility, we will be even stronger leaders in cheetah conservation," he says. "We have a combined staff of research scientists working toward improved natural and assisted reproduction, husbandry scientists who are making huge strides in recognizing how cheetahs should be managed, and vets who are learning tremendous amounts about cheetah illnesses and how to treat them. You don't find many facilities that have that many pieces of the puzzle within the same walls." **SZ**

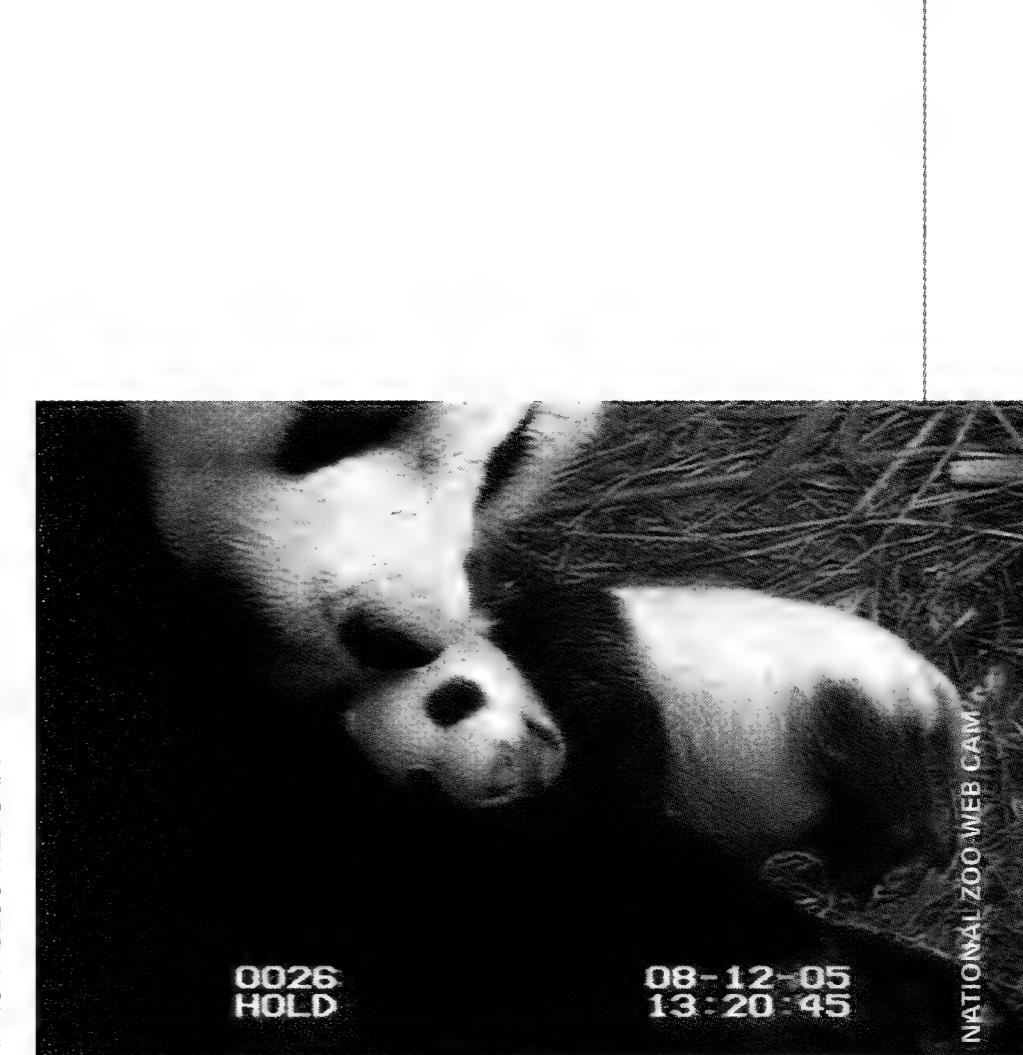
— Freelance writer PHYLLIS MCINTOSH has been a volunteer interpreter at the Zoo for eight years, including six at the Cheetah Conservation Station.



JULY 18, 2005
WEE AND WHITE
Roughly a week old, Tai Shan weighs just a few ounces. His hair is sparse and white.



JULY 26, 2005 | FAMILIAR FEATURES
By the end of July, Tai Shan has begun to look like a giant panda. His eyes are still closed.



AUGUST 12, 2005 | BABY FAT
Just over a month old, Tai Shan weighs three pounds.

The Panda's Progress

A TAI SHAN TIME LINE

Since his birth on July 9, 2005, Tai Shan has been a Smithsonian's National Zoo superstar and a leading ambassador for giant panda conservation. Thousands of images of him lie in the Zoo's photo archive. From those riches, we plucked this portfolio to chart the life of the giant panda who won Washington's heart and wowed fans around the world.





OCTOBER 31, 2005 | GOT CLAWS?

Cuddly though he may look, Tai Shan sports the sharp claws of a bear.

JESSIE COHEN/NZP

DECEMBER 22, 2005 | BIG WIDE WORLD

Five months old and 23 pounds, Tai Shan goes outdoors for the first time.

ANN BATDORF/NZP

FEBRUARY 12, 2006 | SNOW!

Tai Shan romps with his mother, Mei Xiang, during his first foray into the snow.

JESSIE COHEN/NZP

The Panda's Progress

JULY 9, 2006 | FIRST BIRTHDAY

Mei Xiang and Tian Tian are celebrating their first birthday with a special meal of bamboo and apples.



ANN BAIDORF/NZP

JANUARY 22, 2007
GROWING UP

Mei Xiang and Tian Tian are growing up, too. They are learning to climb trees and are becoming more independent.

I ❤ PANDAS

HELP THE ZOO HELP
PANDAS. This National

Year is featuring a new
series of panda facts,
fun-filled activities
and special pandas
at Washington and
other zoos. Consider
making a special donation
to help support giant
panda research and

JESSIE COHEN/NZP



JULY 9, 2007 | SECOND BIRTHDAY
About 150 pounds, Tai Shan ambles toward his birthday treat.



MEHGAN MURPHY/NZP

JULY 9, 2008 | THIRD BIRTHDAY
Nearly 200 pounds, Tai Shan now lives on his own, as he would in the wild.



MEHGAN MURPHY/NZP



MEHGAN MURPHY/NZP

FEBRUARY 4, 2010 | FAREWELL
Keepers give final treats to Tai Shan before he leaves the Zoo.



DONALD E. HURLBERT/SMITHSONIAN INSTITUTION



MEHGAN MURPHY/NZP

FEBRUARY 6, 2010 | SETTLING IN
Tai Shan makes the long journey to the Beijing Zoo's Panda Breeding Center in Beijing, China, to live his final years.



Animals

Safe animal transport takes precise planning, intense training,



MEGAN MURPHY/NZP

on the move

and the ability to cope with surprises.

BY VALERIE MAY

Imagine shipping an heirloom to a loved one. You pack it as carefully as you can, hoping it will arrive intact. Now, to complicate things, imagine that your precious cargo lives and breathes and requires food and water. The Smithsonian's National Zoo faces just that challenge every year as it transports animals in and out of the Zoo. Last year, 2,175 Zoo animals went on the move. Most were invertebrates, mainly aquatic creatures such as cuttlefish.

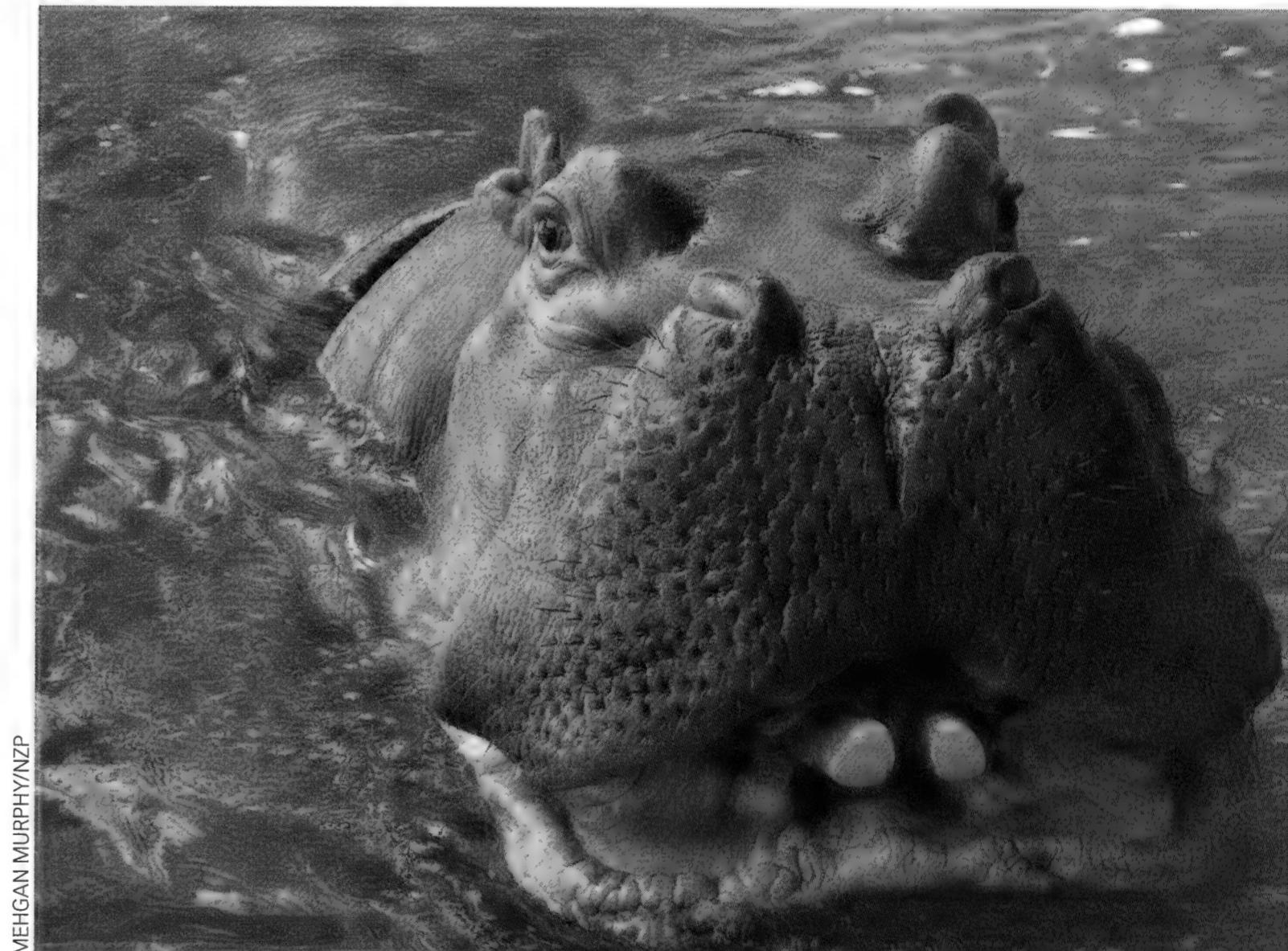
Behind the scenes of each animal move is a complicated scenario involving dozens of steps. On average, at least two months of planning goes into each animal transport. Each scenario is unique, depending on the animal and the circumstances of the move. Small animals are more delicate; large animals present greater logistical challenges. Amphibians require a specific water temperature.

Those are just a few examples of the nuances involved. "As soon as you say 'routine shipment,' you are setting yourself up for trouble," says Frank Kohn of the U.S. Fish and Wildlife Service. "Every animal is unique, and there is no such thing as 'routine.'"

Big Move

It took nearly a year to plan the transport scenario for the biggest—literally—move of 2009, Happy the hippo's departure for Milwaukee. A 5,000-pound Nile hippopotamus (*Hippopotamus amphibius*), Happy was heading to the Milwaukee County Zoo, where he would live with other hippos and have the opportunity to breed.

Once the decision was reached to send the 29-year-old hippo to Milwaukee, John Taylor, Happy's keeper for the past 15 years, began crate-training him. Yes, crate-training. Making Happy comfortable and secure in his moving crate required hours of positive behavioral training—essentially food rewards for Happy when he entered his crate.



ABOVE: Happy, a Nile hippopotamus, was the 22nd hippo born at the Zoo. He was born in 1981. FACING PAGE: Ever so gingerly, a crane lifts Happy and his customized crate out of his enclosure as part of the hippo's move to Milwaukee.

Animals on the Move



ANN HALL/REF/NF





MEHIGAN MURPHY/NZP

Meanwhile, the Zoo's facilities group began planning a custom moving crate for Happy with the assistance of two consulting engineers. A team of 16 builders took the engineers' sketches and fashioned the steel crate. It was 16.5 by 7 by 8.10 feet and weighed 10,000 pounds. It included air vents; sliding doors for water, food, and vet access; and a system of straps that could be used to hoist Happy to his feet should he fall.

"Think in terms of a 5,000-pound bowling ball rolling around the inside of that crate," says Don Moore, the Zoo's associate director for animal care science. Squirminess was a real possibility, since the practice of tranquilizing animals for transport is minimized as much as possible. Safe, humane, and effective transport requires an animal that can position itself safely and whose health can be monitored during the move.

Months of crate-training paid off on September 28, 2009. That day, Happy walked calmly into his crate. Once he was secured, eight tons of hippopotamus and house were hoisted onto a truck and driven west. A chase car followed, carrying a vet and two keepers. Zoos along the way were alerted to make sure special help would be available in case of emergency.

Happily, the emergency never came. Happy remained calm and well through his move, reaching Milwaukee at about 3 a.m. the next morning. Despite the late hour, Happy's new home was ready. Light flooded the unloading area, and some 15 people stood by to begin the two-hour process of unloading Happy and welcoming him to his new digs. Happy came out of his crate calmly, sniffed, and went into his living area. That good start seems to have been an omen, for Happy has settled well into his new home.

Flying Tiger

Happy made his move by truck, but some animals take to the skies when they depart. That was the case for Melati, a young Sumatran tiger (*Panthera tigris*) who



JESSIE COHEN/NZP

CLOCKWISE FROM FAR LEFT: A giraffe on the move; Ms. Cricket in her crate; moving a sloth bear to her new habitat on Asia Trail.

moved to the Dallas Zoo last July as part of a breeding program. She flew aboard a FedEx plane, accompanied by National Zoo keeper Marie Magnuson and Dallas Zoo keeper Becky Wolf.

Melati and her entourage departed the Zoo before dawn. The trip started with coaxing the tiger into a steel crate, a behavior keepers had trained her to do. Despite the practice, entering the crate and being hoisted onto a truck was "pretty amazing and scary" for Melati, Magnuson says. Yet the cat was "a brave girl." The one time she got "feisty" was when FedEx workers put netting over her crate to secure it to a pallet.

A truck carried Melati to Dulles, where reams of paperwork—an inescapable part of transporting endangered animals—awaited. Once everything was in order and Melati safely aboard, the plane took off. Magnuson and Wolf rode on jump seats behind the cockpit so they could attend Melati if she needed them. She didn't.

In Dallas, Melati and company were greeted by a SWAT team from the Dallas Police Department. Transferring Melati from the plane to a new truck went so smoothly, however, that there was nothing for the cops to do, Magnuson says, beside "standing around, looking tough."

Melati reached her new home around 8 p.m. It had been a long day for her and her keepers. All the planning, practice, and paperwork had yielded fruit: Another animal transport was safely complete.

Crate Expectations

The heart of that success story—training an animal to enter a crate and remain calm as it's moved—lies at the core of countless Zoo moves. Breeding programs, vet visits, and facility renovations all require moving animals. So most of the Zoo's keepers crate-train their animals as part of regular care. Zoo visitors can sometimes see an animal's crate in its enclosure.

This type of training requires repetition, time, repetition, patience, and more repetition. "The nice thing about training is the diversity of behavior you can apply one command to. If the animal understands the command, then you can teach it to enter a Sky Kennel, induction box [a clear box used for vet visits], or whatever. That's the



Zoo staff move Berani, a Sumatran tiger who was born at the Zoo in 2001.

JESSIE COHEN/NZP

goal, achieving the behavior with minimal rewards," says Kenton Kerns, a keeper at the Small Mammal House.

Given enough time and practice, some animals learn to enter their crate without getting a food reward. This is useful for when a vet specifies that an animal needs to come for a checkup with an empty stomach. "Our red panda had to enter the crate without food and stress-free for an exam at the hospital," recalls Kerns. Thanks to crate-training, it did.

Crate-training came in handy last year when the Zoo's seals and sea lions moved out of their enclosure so it could be renovated. In response to tasty fish snacks, the gray seals, Selkie and Gunnar, learned to beach themselves and scoot to their transport crates. They are now off exhibit in a temporary home. Meanwhile, the Zoo's California sea lions, Calli and Summer, have moved temporarily to the Pittsburgh Zoo. "Once the girls were in their squeeze cages, they just lifted them onto a truck. Calli barked a little bit but then settled down," says keeper Rebecca Miller.

Crate-training also helps keepers avoid various stress-related actions. Ms. Cricket, a toucan with an endearing personality, suffered an injury early in life. That makes moving her especially tricky. Without crate-training, she would need to be captured with a net for transport.

Instead, Zoo biologist Dan Boritt has been working with Ms. Cricket for

months. "There are lots of stops and starts," he says. "The crate is a very vulnerable place for her, and it requires a lot of confidence building. But we are 99 percent there with Ms. Cricket." She's not alone. About 30 percent of all the bird species at the Zoo are in the process of crate-training.

Birds in general offer special challenges to transport efforts. Flamingos and cranes not only need to be crated but also must be stabilized for their long, spindly legs, generally using slings. The weird story "always comes down to birds in my mind," says Don Moore as he recalls transporting hummingbirds. "They were sitting in a sort of sock on the seat next to my colleague in the airplane. You have to feed them every two hours or so with a sugar solution."

Surprise!

Even when every eventuality has been planned for, things still take unexpected turns. Last June, keeper Carlos Torrez from the Audubon Zoo in New Orleans came to Washington to pick up three rhea eggs, gifts from the National Zoo. Torrez carried them in a small container, discreet enough to slip under his seat.

By the time Torrez reached his seat, however, all three eggs had hatched. Thanks to a sympathetic crew, Torrez was allowed to finish his mission, and the trio of chicks arrived safely at their new home.

Small mammals curator Bob King once had an airport adventure of his own. He

went to National Airport to pick up a howler monkey. He knew the animal had been placed on the plane, but the cargo crew couldn't locate it. Finally, they determined that the crate had been put on the carousel with the regular luggage.

"I got over there as quickly as I could," King says. "By then, they had taken this huge crate off the carousel, and there was a family peering in and shouting, 'Monkey, monkey!' Luckily, howlers are pretty laid-back. I think 'bemused' is the best description of the look on his face."

Sometimes animals take their sweet time with a move. That happens often with zebras, says curator Craig Saffoe. They tend to be afraid of new things, so it may take hours to convince a zebra to enter a horse trailer. There's not much keepers can do but keep trying—and waiting. Once the trailer reaches its destination, the waiting game begins afresh. By then, the trailer has become familiar, and the zebra is reluctant to leave it for a new setting.

Not every animal-move story has a happy ending. In 2008, a hippo died during a transfer from the Denver Zoo to Canada's Calgary Zoo. Kohn from Fish and Wildlife surmises that the animal probably had a preexisting condition, although there were also concerns about the width of the crate. "You try and take something like that as a learning experience," he says. Reviews of transport incidents like this one helped the National Zoo decide to build a custom crate for Happy's successful move to Milwaukee.

Common Threads

From sock-size hummingbirds to hefty hippos, each animal move is one of a kind. Each, as we've seen, presents distinct challenges. Yet common threads bind the hundreds of transports that the Zoo undertakes every year. All moves begin with painstaking planning. Most involve sturdy crates—and persistent, patient training to get animals used to them. Some bring surprises. And each, the Zoo strives to ensure, ends with the safe delivery of precious cargo. **SZ**

—Freelance writer and web producer
VALERIE MAY has created websites for
National Geographic and AARP.

FACT OR FICTION?

All Tortoises Hide in Their Shells

FICTION. A hare that challenged an African pancake tortoise (*Malacochersus tornieri*) to a race would be up against a surprisingly quick-footed opponent. Unlike its “slow and steady” cousins, this species uses its round, elephantine feet to scurry and climb over bumpy terrain in its native Kenya and Tanzania.

The tortoise has reason to run: It can’t withdraw into its flattened shell. When the African pancake tortoise wants to hide, it squeezes its one-inch frame under or between some rocks and takes a deep breath. Since the plastron (undershell) is flexible, the tortoise can puff itself up and prevent predators from prying it out of its hiding place.

— JENNIFER ZOON

Where in the Zoo?

What bird is this and what's that strange growth atop its head? Find the answer at nationalzoo.si.edu/goto/whereinthezoo.

JESSIE COHEN/NZP



ROD WILLIAMS/NATURE PICTURE LIBRARY



JESSIE COHEN/NZP

**SUPERLATIVE
Longest Horns
at the Zoo****Attention all lions, leopards, and hyenas:**

The scimitar-horned oryx (*Oryx dammah*) is not the small, delicate antelope you’ve relied on for food. Sitting atop this herbivore’s head are two horns named after a curved Arabian sword, and the oryx isn’t afraid to use them to defend itself!

Unlike the more modest horns of smaller antelope, this oryx’s horns can grow between three and four feet—more than half the length of the animal’s seven-foot-long body. Relative to body size, the scimitar-horned oryx’s horns are the longest at the National Zoo.

Those horns are supertough. Their bony core is covered with hard keratin, the same protein found in humans’ hair, nails, and skin. Both males and females have horns.

Scimitar-horned oryx once roamed Egypt, Senegal, and Chad, but they are now extinct in the wild. You can see them at the Zoo’s Cheetah Conservation Station.

— JENNIFER ZOON

DID YOU KNOW?**The Original Panda**

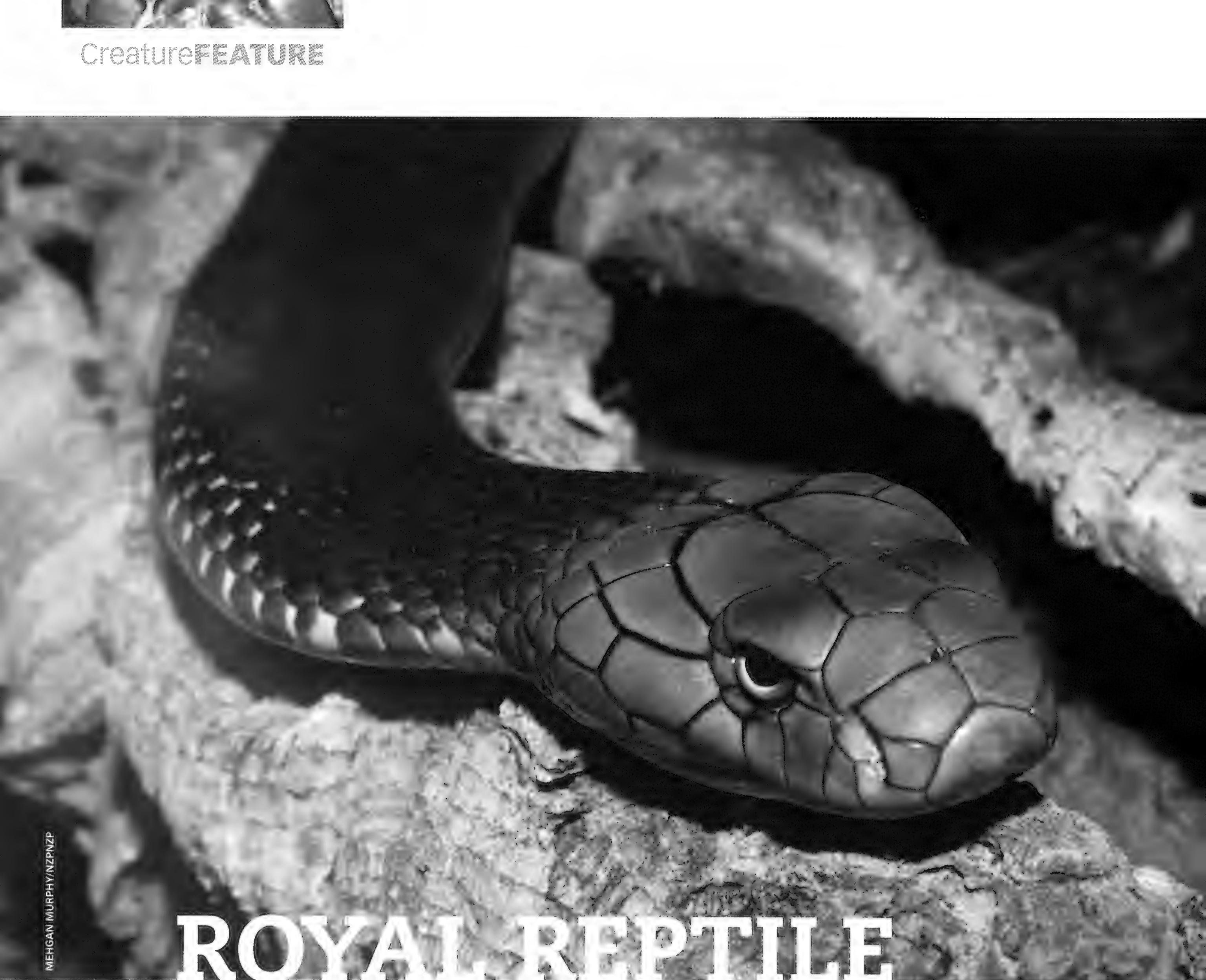
Red pandas (*Ailurus fulgens*) might not be as famous as their giant neighbors on Asia Trail, but they had the name “panda” first. Centuries ago, Asians named the fuzzy red critters “poonya” after their loud cries. In the early 1800s, when French and British naturalists named the species, “poonya” became “panda.” Giant pandas weren’t discovered until 1869.

Red and giant pandas share certain similarities. Both have pseudo-thumbs and powerful jaws that aid with eating bamboo, and both have delayed implantation of their embryos. Yet red pandas are not bears. Rather, they are members of their own family.

— CAROLINE TREADWAY



CAROLINE TREADWAY



ROYAL REPTILE

Come face-to-fang with the world's longest venomous snake.

BY PAMELA BUCKLINGER

KING OF THE KILL » The king cobra is the longest venomous snake in the world. It can grow 18 feet long. It comes in a variety of muted colors, sometimes with bands of light-colored scales. In addition to having a huge head, it can spread some of the ribs in its neck. That creates something called a hood, which gives the snake an even larger and more menacing look. Cobras see well and smell even better. They can sense sound through the ground by detecting vibrations around them. And they have another super sense to help them find their next meal. It's a built-in thermometer, which picks up tiny changes in temperature—most likely indicating a meal approaching. King cobras live mainly in southern Asia and the Philippines.

A SNAKE-EAT-SNAKE WORLD » What do king cobras eat? These princely predators dine almost exclusively on other snakes. Cobras have very few predators, only mongooses and people, so they have their pick of yummy treats. They don't let rough terrain get in their hungry way either. Not only are the kings fast on land, but they can also swim and climb trees to hunt down their prey.

ONE STRIKE AND YOU'RE OUT » To strike, a cobra raises the front third of its body straight off the ground. It lunges quickly. Short, hollow fangs inject venom into the prey. The venom attacks the nervous system and blood vessels. Once the venom does its damage, the regal reptile swallows its prey whole.

STRIKING FACTS

- The king cobra's venom is not the strongest in the world, but a snake can inject so much of it that a single bite can kill an elephant.
- King cobras kill fewer than five people worldwide each year.
- Cobras can live up to 20 years in the wild.
- Cobras have better eyesight than most snakes, but they can't see in color.
- A group of cobras is called a *quiver*.
- Cobras are the only snakes that can spit venom. They do so to defend themselves.



NEST EGGS » King cobras might be deadly killers, but they are caring parents. They are the only snake parents that build a nest for their young and fiercely guard their eggs. The female lays 20 to 40 eggs at a time and guards them until they hatch. The hatchlings break out of their eggs in two to three months. They are about 18 to 20 inches long and have brighter markings than the adults. Don't let their age or size fool you, though. Baby cobras have full-strength venom, just like their parents.

AT THE ZOO » Slither your way to the Reptile Discovery Center to watch the king cobra hold court.

- Cobras can bite without injecting venom. This is called a dry bite.
- Males attract mates by "neck wrestling" with other males. The winner woos the female by flicking his tongue at her, and then rubbing his chin along her body.
- Snakes can be milked for their venom. Small doses of it can be injected into mammals, which build up antibodies to the toxin. Blood from the mammal is then used to make antivenin. It can treat future snake bites in people.



CHRISTOPHER FUTCHER/ISTOCKPHOTO

Turn a Sock Into a Snake

Materials
long sock
felt
google eyes
pom-poms
bendy straws
scissors
glue



FONZ EDUCATION DEPARTMENT

Directions

- 1) Cut out a tongue shape from red felt and glue it to the ankle of the sock.
- 2) Cut out a large oval shape of felt and glue it to the top of your sock.
- 3) Glue pom-poms on each side at the toe of the sock for eyes. Then glue google eyes onto the pom-poms.
- 4) On the shorter end of the bendy straws, cut diagonally from the opening of the straw to make hollow fangs.
- 5) Cut little holes in the sock with scissors where the teeth will be.
- 6) Push the straws through the inside of the sock and poke the pointy ends out of the holes.

BY HOWARD
YOUTH

JESSIE COHEN/NZP

[RESEARCH REPORT]

Neighborhood Nestwatch

Citizen scientists help unlock nesting secrets.

Smithsonian Migratory Bird Center (SMBC) ornithologists go far afield to study bird migration. But they also keep tabs on our local birds, which each spring do their best to hide their nesting activities.

"When I moved to the D.C. area over ten years ago, it was clear I needed to start an urban-ecology program to better determine how birds were being impacted by rampant development," says SMBC research scientist Peter P. Marra. "It was also clear that the project had to include public involvement and education." Now in its tenth year, this collaborative effort between SMBC scientists and local bird enthusiasts, called Neighborhood Nestwatch, has gathered abundant data on how birds are faring in and near the nation's capital.

Each nesting season, SMBC scientists work with more than 250 volunteers to monitor backyard nests and put color-coded bands on birds. So far, they have banded

about 6,000 birds and monitored more than 600 nests. Species under scrutiny include the American robin, northern cardinal, northern mockingbird, gray catbird, Carolina chickadee, house wren, Carolina wren, and song sparrow.

Poring over nest records and compiling data, the investigators have found that some species do better in rural areas while some fare better in suburbs. And Carolina chickadees and house wrens,



SMBC

two cavity-nesting species, tend to have higher nesting success rates and lay more eggs per clutch than open-cup nesters such as northern cardinals and Carolina wrens. Is this because nests in cavities are not as exposed to predators? Or is it just that the chickadees and house wrens nest less often, putting their proverbial eggs in one basket? Further years of data should help answer these and many other questions.

The program also provides data for other urban-bird-ecology projects. These include efforts to monitor West Nile virus, measure contaminant levels in local birds, and get a clearer picture of how domestic cats and other predators affect songbird populations.

Volunteer participation has been critical to the success of Neighborhood Nestwatch. "The data provided by citizens is as good as that provided by trained scientists," says Marra. "The program has been hugely successful largely because of the eager citizen scientists," he says. "In fact, we can't take on all the people who want to join. Raising money to support the program has been the challenge and will likely continue to be the only potential stumbling block."

Meantime, as spring unfolds, birds will nest, and dedicated citizen scientists will embark on another season of unlocking our avian neighbors' secrets, proving that Smithsonian science and public participation are a winning combination.

**SUPPORT
SMITHSONIAN
SCIENCE!**

Want to contribute to
Neighborhood Nest-
watch? Just visit [www.
fonz.org/supportnest-
watch.htm](http://fonz.org/supportnest-
watch.htm).

...Menu...

Amuse-bouche

Whet your appetite at Friends of the National Zoo's annual fundraising gala. This enchanted evening brings together an array of delights for all your senses. ZooFari 2010 celebrates our care and conservation work with giant pandas. Proceeds benefit animal care, science, and education programs at the National Zoo.

Hors d'oeuvres

Begin your culinary adventure with cooking demonstrations from renowned area chefs. Bid on auction items in advance at www.biddingforgood.com/fonz. Enjoy live music while strolling through the Zoo. Special animal demonstrations and exclusive exhibit tours* satisfy your appetite.

Entrée

Savor exquisite tastes from more than 100 Washington-area restaurants. From soups and salads to sustainable seafood and exotic entrées, an extensive menu awaits your palate. Pair your meal with wine selections from 15 vintners to round out your evening.

Dessert

Satisfy your sweet tooth at the ZooFari Sweet Spot, the new dessert area. Coffee will also be served.



Thursday, May 20 from 6:30 to 9:30 p.m.

Smithsonian's National Zoo

This event is rain or shine. Children under two are free. No strollers. Cocktail attire.

*Exhibit tours are available to table buyers only.

Order tickets at www.fonz.org/zooftari.htm.



Cockadoodle ZOO

An event for **FONZ** members
Saturday, April 17, 2010
8-10 a.m.

**Use this page as your parking pass and ticket.
Go to www.fonz.org/cockadoodle.htm for the latest details.**

Rise and shine and
head to the Zoo!
Cockadoodle Zoo
is our way of saying
thank you to our
FONZ members.

SPRINGTIME EVENTS

Easter Monday: Celebrating the African-American Family

April 5, 10 a.m.-4 p.m.
Activities at this free, multicultural festival include crafts, music, dance, and an Easter egg roll and hunt. ☺



MEGAN MURPHY/NZP



MARK ANDERSON/FONZ PHOTO CLUB

Earth Day Celebration »

April 24

Check www.fonz.org/earthday.htm for details.

THANKS TO OUR
WOO AT THE ZOO
SPONSORS!

Whole Foods Market
HOT 99.5
United Airlines



MEGAN MURPHY/NZP

A BIRD-WATCHER'S BOUNTY

May 8 is International Migratory Bird Day. Celebrate at these avian events. To learn more, register, or join the Migratory Bird Club, contact Lisa Whitney at whitneyl@si.edu or 202.633.3027

Lecture

April 22, 7 p.m.

Shorebird biologist Larry Niles will speak in the Visitor Center auditorium about the marathon migrations of Delaware Bay shorebirds. Migratory Bird Club members are welcome to come an hour earlier for a meet-and-greet with Niles and scientists from the Smithsonian Migratory Bird Center.

Migration Celebration

May 8, 9 a.m.-11 a.m.

FONZ members are invited to celebrate International Migratory Bird Day at the Bird House, where scientists and keepers will offer special demonstrations. Migratory Bird Club members are welcome to an exclusive breakfast and bird-banding demo at 8 a.m.

Field Trip

May 22

Migratory Bird Club members are invited to travel to Delaware Bay to witness one of nature's great spectacles: the stopover of thousands of migrating red knots to gorge on horseshoe crab eggs. A picnic lunch and beverages will be provided.

FONZ RESOURCES

www.fonz.org

Membership Information
202.633.2922

Special Events
202.633.4470

Development Office
202.633.3033

Camps and Classes
202.633.4470

Volunteer Services
202.633.3025

Comments? Questions?

Please email us at
member@fonz.org

Not a FONZ member yet?

Call 202.633.3034 or go to www.fonz.org/join.htm

ADULT/CHILD CLASSES

These programs invite adults and children to discover the Zoo together. All children must be accompanied by an adult. For everyone's safety and enjoyment, unregistered children and siblings may not attend—except for infants who do not yet crawl.

Animal Families

From a cub in a pack to a great silverback, animals live in all different kinds of families. Sometimes alone and sometimes in groups, animals care for one another in distinct ways—some of which may surprise you!

AGES 2-3**DATES** Session 1: Mar. 6
Session 2: Mar. 7**TIME** 10-11:30 a.m.**FEE** \$25**Four Seasons**

Hot. Cold. Wet. Dry. Extremes of weather can be hard on wild animals. Learn how emperor penguin dads shelter their young from the cold, why caribou get a different colored coat every spring, and how animals stockpile food in preparation for winter. Each class will highlight a different season.

AGES 3-5**DATES** Session 1: Mar. 11, 18; Apr. 8, 15
Session 2: Mar. 12, 19; Apr. 9, 16**TIME** 1-2:30 p.m.**FEE** \$80**Spring, Sprang, Sprung**

Spring is here, and with the warmer weather comes more animal activity. Hop, spring, and bounce to the Zoo and see how animals move and which ones like to jump around.

AGES 2-3**DATE** Mar. 20**TIME** 10-11:30 a.m.**FEE** \$25**Baby Beluga**

Dive into the deep blue sea with hands-on activities designed to teach toddlers about ocean life. Sing the Raffi song "Baby Beluga," make a sea craft, and see real sea creatures on a Zoo walk.

AGES 2-3**DATE** Mar. 28**TIME** 10-11:30 a.m.**FEE** \$25**Zoo Babies**

Meet your favorite Zoo cubs, chicks, pups, and kids and learn about them through songs, crafts, and games. This class is a great way for a parent and young child to get introduced to the Zoo and its fun and fascinating animals.

AGES 2-3**DATE** Apr. 4**TIME** 10-11:30 a.m.**FEE** \$25**Down on the Farm**

Ducks, cows, and donkeys, oh my! Moooove your schedule around because you won't want to miss this opportunity to learn more and get up close to the Zoo's not-as-wild animals that live at Kids' Farm.

AGES 2-3**DATE** Apr. 10**TIME** 10-11:30 a.m.**FEE** \$25**Lifestyles of the Small and Furry**

Some animals might be small, but they are still big fun! Meet the Zoo's smallest mammals and learn why great things come in small packages.

AGES 2-3**DATE** Apr. 24**TIME** 10-11:30 a.m.**FEE** \$25**Animal Homes**

Discover the many types of homes created by different members of the animal kingdom. Learn how animals choose shelter and how they use clever techniques to build their homes. Whether it is a beaver's lodge, bird's nest, or naked mole-rat's burrow, we will explore the ways wild animals live.

AGES 3-5**DATES** Session 1: Apr. 29;

May 6, 13, 20

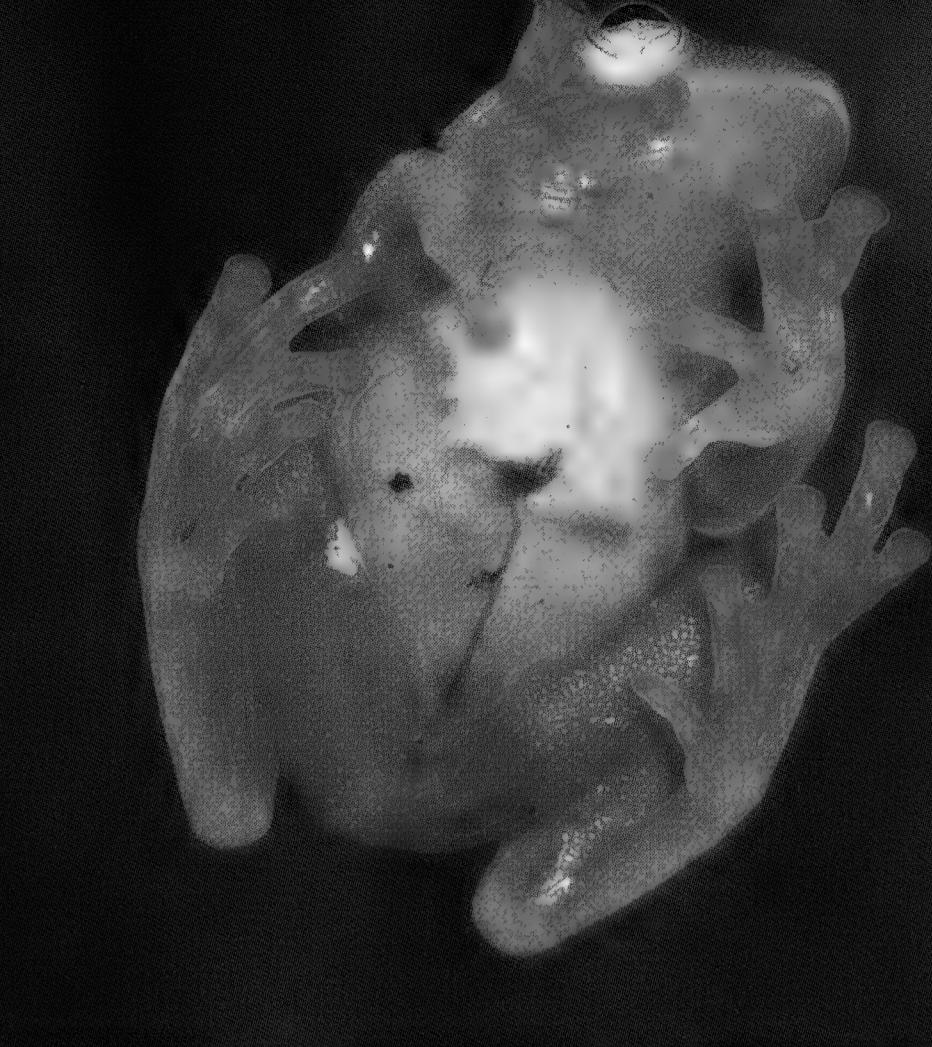
Session 2: Apr. 30;

May 7, 14, 21

TIME 1-2:30 p.m.**FEE** \$80

Register Online at
www.fonz.org/classes.htm.

Children's classes and programs are open to FONZ members at the household level or above. Classes meet in the Visitor Center unless otherwise noted.



MEGAN MURPHY/NZP



MEGAN MURPHY/NZP

Life in the Fast Lane

Cheetahs are the world's fastest land animals, but the race to save the species is far from over. Meet the Zoo's cheetah and learn about its unique adaptations, which make it very fast—yet very vulnerable.

AGES 2-3
DATE May 1
TIME 10-11:30 a.m.
Fee \$25

Super Moms

How do mammal moms differ from bird and reptile moms? From feeding to nestbuilding, learn about the challenges animal moms face every day while trying to raise healthy and strong babies. And meet some of the Zoo's most celebrated moms.

AGES 2-3
DATE May 9
TIME 10-11:30 a.m.
Fee \$25

CHILDREN'S WEEKEND WORKSHOPS Parents are not encouraged to stay with the class, but may if they wish (for no charge).

Wild Disguises

Imagine a place where creatures are shaped like leaves, rocks, or even bird poop; a land where beasts could change the color or the shape of their skin. That place you're imagining is our own planet! Animals have incredible ways of blending into their environment. Learn camouflage techniques and examine some ingenious methods animals use to hide from predators and to hunt for prey without being seen.

AGES 4-5
DATES Session 1: Mar. 13
Session 2: Mar. 14
TIME 10 a.m.-noon
Fee \$28

Myth Busters

You've heard that bats are blind, that you can get warts from toads, and that an elephant never forgets. Can these be true? Investigate, meet the suspects, and help debunk animal myths.

AGES 6-9
DATE Mar. 13
TIME 10 a.m.-noon
Fee \$28

Land of the Giants

Did you know that four kinds of giants live at the Zoo? Giant anteaters, Japanese giant salamanders, a giant Pacific octopus, and giant pandas, of course! Come on a supersize adventure and meet these larger-than-life creatures.

AGES 4-5
DATE Mar. 21
TIME 10 a.m.-noon
Fee \$28

Creatures of the Night

Who is stirring when the sun goes down? Come meet the animals that lurk in the shadows and learn about their nocturnal adaptations. After night falls, they hunt, work, and play until it's time for us to start the day. Flashlight required!

AGES 4-5
DATE Mar. 27
TIME 10 a.m.-noon
Fee \$28

Eggstravaganza

Eggs aren't just for the birds. Animals from walking sticks to crocodiles (and even some mammals!) lay eggs. In this class, we will explore the incredible world of eggs. It's no "yolk" that this is an "eggstraordinary" class.

AGES 4-5
DATE Apr. 3
TIME 10 a.m.-noon
Fee \$28



Zookeeper

Caring for animals can be a tough job. Put on a zookeeper shirt and see what it takes to keep a hippo happy and a capuchin clean in our play-based class that takes place in the How Do You Zoo? Exhibit.

AGES 4-5
DATES Session 1: Apr. 10
Session 2: Apr. 11
TIME 10 a.m.-noon
Fee \$28

Zoo-Dunnit

Grab your binoculars and venture through the Zoo to find clues about the animal kingdom. Test your newly acquired knowledge of Zoo animals and scientific method—and uncover a treasure chest of zoo-rific prizes.

AGES 4-5
DATE Apr. 18
TIME 10 a.m.-noon
Fee \$28

Eco Challenge!

Calling all junior environmentalists! What better place to celebrate Earth Day than the Smithsonian's National Zoo? Come meet some of the Zoo's endangered animals and learn about the programs in place to save them. Find out about conservation efforts at the Zoo as well as what part you can play to help protect the environment.

AGES 4-5
DATE Apr. 25
TIME 10 a.m.-noon
Fee \$28

Splash Dance

Coral reefs are in danger, and the National Zoo is doing its part to save them! Learn about reef animals, from anemones to octopuses, and dive into one of the world's most fascinating ecosystems.

AGES 4-5
DATE May 1
TIME 10 a.m.-noon
Fee \$28

Flying High

Celebrate Migratory Bird Day with the Zoo's feathered friends. Learn about the art of flight and some of birds' amazing adaptations. Discover the incredible journey many birds undertake each year and make your own set of wings. Sponsored by United Airlines.

AGES 4-5
DATE May 8
TIME 10 a.m.-noon
Fee \$28

Zoo Vet

Can you imagine what it takes to care for a giant elephant or slippery salamander? Zoo veterinarians have one of the toughest jobs around. Bring your favorite stuffed animal along to practice your veterinary skills in the How Do You Zoo? Exhibit!

AGES 4-5
DATES Session 1: May 15
Session 2: May 16
TIME 10 a.m.-noon
Fee \$28

Mythical Creatures

Centaurs, dragons, and unicorns can all be found at the National Zoo. All you need is a little imagination. Take a magical journey with the fabulous creatures from the world's folklore. Visit the animals behind the mysteries.

AGES 6-9
DATE May 15
TIME 10 a.m.-noon
Fee \$28

HOME EDUCATION

CLASSES Attention all home educators! Contact us at fonz_programs@si.edu if you are interested in setting up an education program that can meet your specific needs.

MEGHAN MURPHY/NZP

This is no ordinary camping trip!



Imagine waking up to the roar of powerful lions or hearing the early morning call of playful gibbons. Come spend the night at the Smithsonian's National Zoo. It's the best way to see the Zoo's animals after hours and have the park all to yourself.

Your overnight will begin with a two-hour, keeper-led tour of an exhibit area. Then later, flashlight in hand, you will hike through the Zoo and check out awesome nocturnal animals. That night, you will sleep in a tent on Lion/Tiger Hill. Your adventure will conclude the next morning with a continental breakfast and a family-friendly scavenger hunt activity.

Snore & Roar overnights take place between June and September. Online registration will begin on Tuesday, April 6 at 10 a.m.

Find a schedule and register at www.fonz.org/snoreandroar.htm.

FONZ MEMBERS ONLY To sign up, you must hold a current household membership or higher. Adult-only Snore & Roars are available to all membership levels. Participants in family overnights may bring two additional children as guests. A maximum of six participants may sign up per registration. Snore & Roar campers sleep in four-person tents. Participants are never asked to share their tent with strangers. Large groups cannot be accommodated.

Upgrade to a contributing membership (or higher) and register for Snore & Roar one week early. Priority registration begins online at 10 a.m. on Tuesday, March 30.

AGES Adults and children ages 6 and up. A paying adult must accompany anyone under 18, and one adult must chaperone every three children. Participants in adult-only overnights must be 21 or older.

TIME 6 p.m. to 9 a.m. the following day. A small snack is provided, but participants should eat dinner before coming to the Zoo. All Zoo restaurants close at 5 p.m.

SNORE & ROARS ARE NOT JUST FOR KIDS! Adult-only programs include wine and cheese, a two-hour, keeper-led tour, flashlight tour of the Zoo, and continental breakfast.



MEGHAN MURPHY/NZP

Tour Choices

Enjoy an exclusive, keeper-led tour of one of the following areas.

Elephant Exhibit/Com-

missary What does it take to feed a 9,000-pound elephant? Feast your eyes on the Zoo's new larger-than-life exhibit, Elephant Trails. Then meet a Zoo nutritionist and go on a behind-the-scenes tour to see where all of the diets for the Zoo's animals are designed and prepared.

FEE: \$65 per person

Cheetah Conservation

Station/Asia Trail A true after-hours hot spot in the heart of D.C., our Cheetah Conservation Station and Asia Trail are hubs of activity at night with cheetahs, maned wolves, zebras, sloth bears, clouded leopards, otters, red pandas, and more. Please note: Giant pandas are not part of this tour.

FEE: \$100 per person

Invertebrates/Reptiles

Being spineless can be cool. In fact, most animals lack backbones. Learn about the giant Pacific octopus, corals, golden orb spiders and incredible invertebrates. Then get the rap on reptiles and amphibians from giant anacondas to Panamanian golden frogs, extinct in the wild.

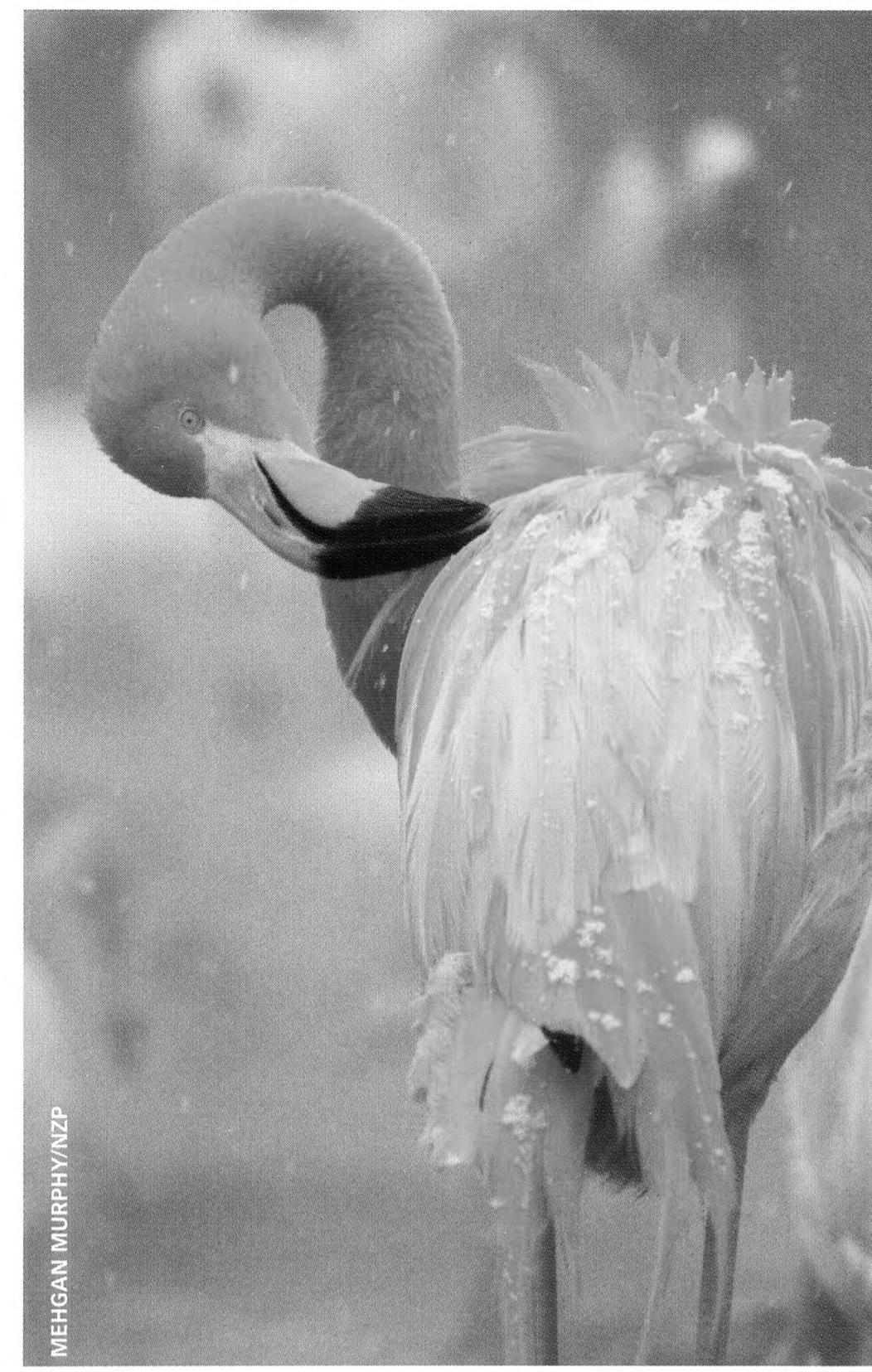
FEE: \$65 per person

Great Cats/Kids' Farm

No time for a cat nap! It's Snore & Roar gone carnivore—your chance to learn about lions and tigers. Afterwards, mooooove on over to the Kids' Farm with a hands-on lesson on what it takes to care for farm life at the Zoo.

FEE: \$100 per person

CANCELLATION POLICY: To receive a 75-percent refund, you must provide written notification via email or regular mail at least four weeks before your Snore & Roar date. No refunds or changes will be made thereafter. Snore & Roar overnights go on rain or shine.



Bird House From cute little kiwis and terrific toucans to fabulous flamingos and cool kori bustards (the largest birds that can fly), the Bird House is home to hundreds of feathered favorites. Visit them and get a keeper's insights into the wonderful world of birds.

FEE: \$65 per person

Small Mammals While you're out there roughing it, our mini-mammals will be fluffing it. See our lemurs leaping, watch our monkeys monkeying around, and peer into the underground world of naked mole-rats.

FEE: \$65 per person

Amazonia Take your family on a romp through the rainforest where you'll have an evening encounter with amphibians, fish, freshwater rays, birds and free-ranging monkeys.

FEE: \$65 per person

Giant Pandas/Great Apes Wake up with your primate cousins in the Ape House and come to the bamboo buffet breakfast with the giant pandas. These National Zoo celebrities are a grand way to start your day. Note: This tour takes place in the morning.

FEE: \$100 per person

Scout Snooze

When it comes to camping with exotic animals, nothing beats the Smithsonian's National Zoo. Your troop's overnight will include wildlife-related activities and a flashlight tour of the nocturnal residents at the Zoo.

Scout Snooze campers sleep on Lion/Tiger Hill in four-person tents provided by FONZ. In the morning, an animal keeper leads campers on a two-hour tour of an exhibit area. An evening snack and continental breakfast are provided.

Scout Snooze sleepovers are available only to FONZ members. To sign up, one adult per scout group must have a FONZ Household membership (or higher). Scout leaders may assign tent arrangements.

AGES Children ages 6 and older. A paying adult must accompany all participants under 18, and one adult is required to chaperone every three children.

TIME 6 p.m. to 9:30 a.m. the following day. A small snack is provided, but participants should eat dinner before coming to the Zoo. All Zoo restaurants close at 5 p.m.

FEE \$650 for up to ten people (including adults), \$65 for each individual above ten and up to twenty participants.



Scout Snooze Programs

Each overnight includes a tour of one or two of the following areas. Visit www.fonz.org/scoutsnooze.htm to learn more.

- **Kids' Farm**
- **Prairie Dogs**
- **Invertebrates**
- **Great Apes**
- **Bird House**
- **Elephants**
- **Small Mammals**
- **Reptile Discovery Center**
- **Amazonia**

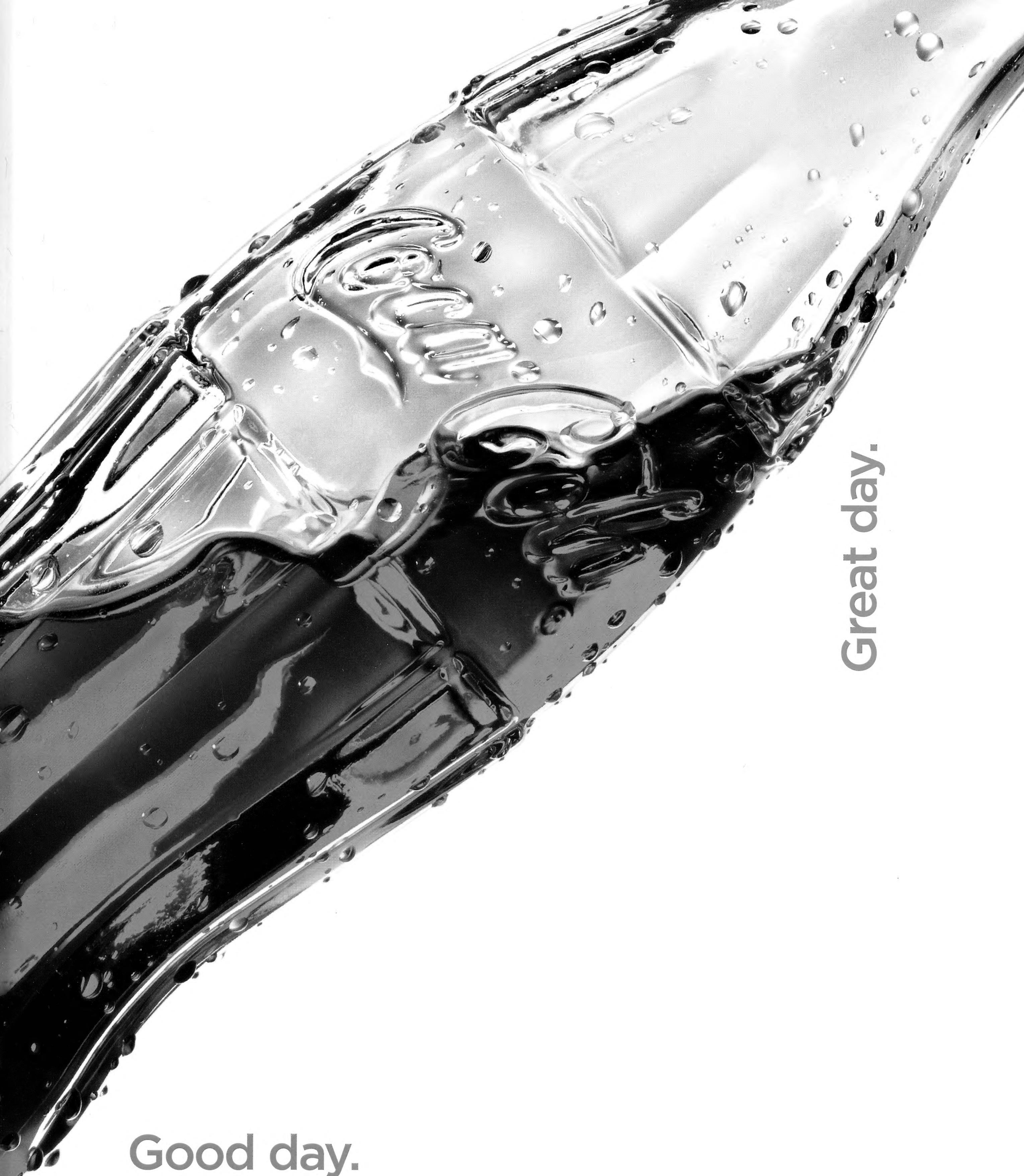


Light and Luck

“It’s all about the light,” says photographer **Dave Wright**, a FONZ member for whom photography “is more of a passion than a hobby.” Every few months, when the light is right, he drives 80 miles from his home near the mouth of the Patuxent River to spend a day shooting at the Zoo. One day at the Great Cats exhibit, Wright enjoyed great light—and good luck. A plane soared overhead, prompting Luke, our male lion, to glance upward. The result: this stunning shot.

Technical Notes — **CAMERA:** Canon 1D Mark III; **EXPOSURE:** 1/125 second at f/4.0; **FOCAL LENGTH:** 500 mm

Smithsonian Zoogoer welcomes FONZ members’ submissions for the Zoo View page. Please send photos to **zoogoer@si.edu**. We will contact you if we are able to use your picture.



Great day.

Good day.



Friends of the National Zoo, PO Box 37012, MRC 5516, NW, Washington, DC 20013-7012, www.fonz.org



Smithsonian
National Zoological Park

SEALED WITH LOVE

For Mother's Day, the Zoo is launching a new series of limited-edition customized postage celebrating the universal love of mothers for their babies. So be sure to mail your Mother's Day cards with postage from the Zoo Moms Stamp Series.

Proceeds benefit animal care, science, and education programs at the National Zoo, sending a little love to the animals too. Get your stamps today at www.fonz.org/stamps.htm.

